

D207.208/4:Or4

NAVAL ORIENT

PREFACE

Naval Orientation has been prepared mainly for programs. It is a source of useful information, however, the Department of the Navy and the U.S. Coast Guard. Valuable background information for all hands and for Navy life and the rules, customs, and traditions that govern.

This text was prepared by the Naval Education and Development Center, Pensacola, Florida, for the Chief of Naval Education and Training. Suggestions, comments, and criticisms are

Revised 1977

Published by
NAVAL EDUCATION AND TRAINING SUPPLEMENT

THE UNITED STATES

GUARDIAN OF OUR COUNTRY

The United States Navy is responsible for maintaining control of the sea and is a ready force on watch at home and overseas. It takes strong action to preserve the peace or of instant offense to win in war.

It is upon the maintenance of this control that our country's future depends; the United States Navy exists to make this possible.

WE SERVE WITH HONOR

Tradition, valor, and victory are the Navy's heritage from the past; these may be added dedication, discipline, and vigilance as watchwords of the present and the future.

At home or on distant stations we serve with pride, confidence, and respect of our country, our shipmates, and our families.

Our responsibilities sober us; our adversities strengthen us.

Service to God and Country is our special privilege and honor.

THE FUTURE OF THE NAVY

The Navy will continue to serve the United States and the world.

CONTENTS

CHAPTER

1. The Navy and seapower
2. Makers of Naval tradition
3. The Naval Officer's career
4. Naval terms and customs
5. Uniforms and insignia
6. Military courtesy
7. Discipline and the Uniform Code of Military Justice
8. Leadership
9. Department of the Navy
10. Components and supporting elements of the Navy

CHAPTER

20. Antiair warfare	
21. Undersea warfare	
22. Antisubmarine warfare	
23. Amphibious warfare	
24. Logistics	
25. Naval telecommunications	
26. Security	
27. Naval intelligence	
28. Research and development	

APPENDIX

I. Personnel records	
II. Officer fitness reports	
III. Classification and distribution of officers	
IV. Morse code, semaphore, and alphabet flags	
V. Honors and ceremonies	
VI. Awards	
VII. History of the U.S. Naval Academy	
INDEX	

CHAPTER 1

THE NAVY AND SEAPO

Seapower as a concept means more than military power at sea. According to an OPNAV definition—

“Seapower is the sum of a nation’s capabilities to implement its interests in the ocean, by using the ocean areas for political, economic, and military activities in peace or war in order to attain national objectives—with principal components of seapower being naval power, ocean science, ocean industry, and ocean commerce.”

The first use of the term “seapower” was by Captain Alfred Thayer Mahan, USN, in his principal work, *The Influence of Seapower Upon History, 1660-1783*, published in 1890. Mahan explained seapower as a function of a nation’s (1) geographic position conducive to the use of seapower, (2) physical conformation,

sole determin complex. Ad little if she conformation numerous, fi climate are physical con climate and own wants, England, lac compelled to

Mahan’s of territory interdependence adequate sea population n accessible sh seacoasts and nation’s co penetration b

The gist

in the forefront of the major maritime powers endorsed Mahan's doctrine based on the belief that history provides clues to achieving maritime supremacy. Mahan's concept, therefore, became the intellectual force behind the physical development of the Navy.

HISTORY OF SEAPOWER

There is evidence that seapower was an important influence in history as far back as 4000 years ago. The ancient Cretans, who are credited with being the first possessors of a navy and a merchant marine, were at that time dominating the peoples who lived on the shores of the Aegean Sea—now Greece and Turkey. The Phoenicians were next to prosper from their mastery of the sea, and they are often referred to as the real pioneers in the use of maritime power. Their sea rule was long, but for various reasons eventually ended.

Then came the Greeks. Greece, a land of peninsulas, was marked for conquest by Persia in 492 B.C. The Greeks managed to repel the invaders twice in ensuing years, but the Persians reigned supreme on the sea. Then the Greek gods told the Athenians to put their trust in wooden walls, which the Greek commander Themistocles interpreted to mean ships.

In the decisive battle of Salamis in 480 B.C., the Persians moved to bottle up the Greek fleet, thus falling into the trap set by Themistocles. In order to engage the Greeks, Persian ships had to transit a narrow opening between the Greek mainland and the island of Salamis. This maneuver forced the Persians to fight with just a few ships at a time, more or less on even terms in spite of their superior numbers. For the first time in naval warfare, these tactics presented the chance for one fleet to flank the advance of another. And this the Greeks did, closing and ramming time and again. Badly outmaneuvered, Persian "King of Kings" Xerxes witnessed the loss of half his ships, and thus the end of his hopes to conquer Greece. The ensuing period of peace, prosperity, and productivity in the arts, known as the Golden Age of Athens, lasted—significantly enough—just about as long as the Greek city-states maintained their collective seapower.

Rome, which succeeded to greatness first by alliance with the powerful Greek city-states, and more enduringly by absorption of Greek culture, found a formidable rival. This was Carthage, which had been a Phoenician colony.

At the outset of the Punic wars, Rome, recognizing the need for seapower, greatly enlarged her modest navy. At this early age the Romans were not particularly able sailors nor were they adept tacticians. With ships superior in size and numbers plus some clever innovations, however, they eventually were able to sweep the more skillful Carthaginians in their lighter vessels from the sea. Roman seamanship improved rapidly, and it was Rome's seapower that forced Hannibal to take the difficult overland route to Italy via Spain and the Alps, thereby losing about half his forces. It was Roman seapower also that enabled her to move her powerful legions over the Mediterranean almost at will, building an empire which endured for almost 600 years.

Following the fall of Rome, Constantinople on the Bosphorus—watergate between Europe and the Near East—became the center of ancient culture. Renaissance Venice succeeded Constantinople as a great seapower of its era, but much of the Mediterranean was now a Moorish lake. This put a halt to European commerce with Asia and Africa, except at the extravagant risk of paying tribute to one pirate ruler after another—a custom that was to prevail until American seapower helped abolish it more than 350 years later.

The age of exploration and colonization was the age of seapower in its broadest applications. The nations employing it became rich and powerful. They profited by what ships brought them, and the world profited by what they sent forth in ships. Inevitably there were collisions between the maritime rivals, and many wars were fought between opposing seapowers. When seapower meets seapower, what factors determine who shall be the victor?

All other things being equal, victory is assured the contestant who has the soundest knowledge of the sea and use of ships on the sea. It was know-how—the combination of technical

knowledge and practical skill—that made Drake the master of the Duke of Medina-Sidonia and set Nelson above Villeneuve.

Three great maritime powers—Spain, Portugal, and France—each made great and enduring contributions to discovery, exploration, and colonization overseas, but finally dwindled either because they did not fully understand the use of the sea, or because their comprehension was inferior to that of their opponents.

Portugal's gaudy but brief career as a seapower was extinguished by her stronger rival and enveloping neighbor, Spain.

Spain gained through seapower an empire that has since been divided into half-a-hundred sovereignties, but the Spanish language and Spanish customs still persist from the Philippine Republic to Mexico and Patagonia.

Probably no investment in history yielded greater dividends than the \$5000 or so with which Queen Isabella financed the voyage of Columbus into the western sea. Before long, the steady stream of silver and gold from distant shores was pouring millions a year into the royal coffers. Treasure-laden ships sailed not singly but in groups shepherded by warships. This was an early example of a protective convoy.

From 1492 to 1588 Spain stood in the forefront of the nations of Europe. But Spain was a classic example of seapower expressed in terms of quantity rather than of quality.

In 1588 her king, Philip II, determined finally to end the successful English raids on Spanish ships and ports and to bring England back into the Catholic fold by attacking her with what seemed an irresistible military force. A fleet of 124 ships, manned by 8,000 sailors and carrying 19,000 soldiers, made up the Spanish Grand Invincible Armada when it entered the English Channel. To oppose it, the English had only 90 ships, plus a mosquito fleet which had never seen action. However, they also had the know-how personified in Sir Francis Drake and his men.

The Armada was organized along the same lines as an army; it was under the command of a

general, the Duke of Medina-Sidonia, who knew little of naval warfare. On the other hand, Drake, a master mariner, knew how to use wind and tide as allies. The confrontation that ensued marked the turning point in naval tactics. Previously, naval battles had been virtually infantry fights on floating platforms. If ramming did not sink an enemy ship, soldiers were sent swarming over her side to engage in hand-to-hand conflict. The English, however, planned something quite different on this occasion. They maneuvered to windward of the Spaniards and pounded them with artillery from a distance. This deprived the soldiers of the opportunity to come to grips with the enemy. The big lumbering Spanish ships, with their towering upper works, were splendid targets.

The Spanish, ignoring a chance to attack the English off Plymouth, sailed on up the Channel. The English pecked away at the Armada on its trip up the Channel, but did little damage except to induce the Spaniards to fire all their heavy shot with no telling effects. The Spaniards anchored in Calais, and during the night the English forced them out by floating several burning hulks down on them. The combined English and Dutch fleets attacked the Armada the next day and might have crushed it if they had had ample powder and shot. As it was, the demoralized Spaniards fled north and rounded the British Isles to the Atlantic where storms nearly succeeded in finishing what the English had started. The defeat of the Armada ushered in the decline of Spain's world dominance, while England went on to become mistress of the sea.

While not achieving any great destruction of the enemy, the English demonstrated superior adaptability of tactics to weapons. From that time on, gunnery gradually replaced shock action in battles at sea. The cries of "Boarders away!" and "Stand by to repel boarders!" gradually became less frequent. The day was still far distant when ships would become targets while still hull down on the horizon, but that was the direction of naval progress after the decisive Armada defeat.

The French did not have the compulsion to take to the sea as did the British and Dutch. Their national policy was to develop their rich

land and defend it against predatory neighbors while expending minimum resources toward extending the nation's seapower. French naval captains were ordered to avoid risk—a policy not designed to control the seas by destruction of enemy naval forces, but merely to dispute them by commerce raiding. In the end, this policy cost France both her navy and her merchant fleets, and contributed to the loss of Canada and other overseas colonies.

The American Revolution had elements of a maritime war, and it was seapower that eventually helped to win independence for the colonies.

The final and decisive battle at Yorktown would never have occurred had not the French fleet under de Grasse attained command of the sea in the Virginia Capes area. Thus Cornwallis, the British commander, surrounded on the landward side by the combined Franco-American army and on the seaward side by the French fleet, was forced to surrender.

General George Washington understood seapower and appreciated its use as indicated in his statements below:

"In any operation, and under all circumstances, a decisive naval superiority is to be considered as a fundamental principle, and the basis upon which every hope of success must ultimately depend."

Again, he said:

"Whatever efforts are made by land armies, the navy must have the casting vote in the present conflict... A constant naval superiority would terminate the war speedily; without it, I do not know that it will ever be terminated honorably."

Later, as President, Washington pointed out that U.S. commerce required a naval force to protect it and then added something the American people promptly forgot: that the most sincere neutrality offered in itself little protection against the depredations of nations at war. Only a navy organized and ready to

vindicate it from insult or aggression could secure respect to a neutral flag. He added that such a force might even prevent the necessity of going to war at all.

Napoleon, although a master strategist on land, had little knowledge of war at sea. He looked in vain for a naval officer who really understood seapower. He said:

"The great weakness of our navy is that the men who command it are inexperienced in all the hazards of command. I look increasingly for the right naval officer without being able to find him. In that profession there is a specialty, a technicality, which put a limit to all my conceptions."

Characteristic of the superior use of seapower by the British are the naval aspects of the Napoleonic Wars. It was the combined land forces of Britain and her allies that eventually crushed Napoleon's armies and broke his power. But seapower had been working steadily and relentlessly to contribute to that end. Seapower enabled first Sir John Moore and then the Duke of Wellington to conduct a war on the extended flanks of the French in Spain and Portugal, and then at the strategic moment to shift those same troops to Flanders on the way to Waterloo. Nelson laid the foundations for this mobility in the great victories of the Nile, Cape St. Vincent, and Trafalgar, which closed the sea to the French but made it an open highway for the British. British land forces were never more than fractional compared with Napoleon's Grand Army. But Napoleonic strategy demanded troops stationed everywhere in Europe, while the British needed to strike only in selected spots of their own choosing. Seapower enabled the British to apply concentrated power against Napoleon's weak point on his own territory.

It was during the Napoleonic Wars that American seapower first was used to implement the foreign policy of the recently created United States. The United States, along with other nations, had for some time been paying tribute to the so-called Barbary Powers in order to prevent the seizure of shipping by pirates of these countries. This practice was ended when it

was finally decided that gunpower instead of tribute was the best solution to the problem.

In the war of 1812, despite a few highly successful frigate duels, the few American saltwater warships and merchantships were eventually tightly blockaded by overwhelming British forces. It was American privateers, on commerce-raiding missions, who achieved surprising success against England's merchant marine. Although they by no means inhibited the power of the British fleet or caused any lasting effect on the British economy, the British Government, heavily engaged in European struggles, felt it best to negotiate a reasonable peace.

In the Civil War, control of the sea was overwhelmingly in the hands of the North. For 4 years the Union Navy was constantly occupied with the task of blockading more than 3000 miles of coastline, running down Southern commerce raiders, cooperating with the Army in capturing coastal strongholds, and opening the Mississippi and other waterways that led into the South. The South countered with commerce raiders, but the strangling effect of the Union blockade eventually took its toll. It crippled the finances of the Confederacy, shut out foodstuffs and munitions, and proved a major factor in deciding the outcome of the war. The country learned from this war that a navy could not be quickly and readily improvised in an emergency. Even then, the days were past when merchant vessels could be converted rapidly into efficient men-of-war.

When the Spanish-American War broke out, it was at once recognized that the conflict would be primarily naval and would be won by the nation that secured control of the sea. The Spanish Navy at that time, was characterized by poor equipment, incompetence, and lack of trained personnel, while the U.S. Navy, though small, was soon prepared for aggressive actions at sea. Both at Manila Bay and Santiago the enemy's fleet was destroyed. Although Dewey's victory at Manila Bay had little material effect on the war, the destruction of Admiral Cervera's ships off Santiago, Cuba, established the Navy's command of the Caribbean.

THE GREAT WHITE FLEET

In 1907 President Theodore Roosevelt ordered the bulk of U.S. seapower to sail around the world. This composite of 16 battleships was designed to impress upon the world, and particularly upon the Japanese who were posing a growing threat in the Pacific, the fact that the U.S. Navy was second in strength only to that of Great Britain. By the time the White Fleet finished its 2-year cruise, the United States already had launched an even more impressive addition to her fleet, the *USS Delaware*, built to keep pace with *HMS Dreadnought* which was setting the pattern for a new era of naval warfare.

SEAPOWER IN MODERN TIMES

World War I was similar to the Napoleonic Wars in that it was a struggle between landpower predominant on the continent and naval power supreme on the seas. It should have been obvious that the British Navy, rather than the French Army, was the principal barrier to German success. A correct appraisal of this situation as early as 1905, when Germany began in earnest to build up her naval strength, might have resulted in a reallocation of Germany's war-making resources in order to provide a navy strong enough to defeat Great Britain's. As it was, Germany's leaders were land minded, and the Imperial Army was the favored service—a fact that caused Admiral von Tirpitz to lament "We Germans do not understand the sea!" Today the U-boat force was recognized as Germany's deadliest offensive weapon. Although measures were taken to expand the naval arm of the German Navy, planned and constructed by von Tirpitz, was almost, but never quite, big enough.

In World War II the Germans once more demonstrated shortsightedness and incapacity to make the best use of their resources in seapower. Again they failed to make provision for contesting control of the sea by building an adequate number of ships. Even so, if the Axis

Powers had correctly estimated the strategic importance of the Mediterranean and if, early in the war, they had concentrated all possible naval resources in that area with the Italian fleet as the main striking force and with their other military forces operating in support, the story might have been different and the Mediterranean might well have become an Axis lake. Under such circumstances the Allies' African campaign would have faced almost insurmountable difficulties.

England held an uncertain tenure in the Mediterranean while U.S. seapower was being assembled. Later, with combined strength, the U.S. and England conducted the great amphibious campaigns that were each a steppingstone to final victory—North Africa, Sicily, Italy, Normandy, and the Mediterranean coast of France.

In the Pacific, with local control of the sea, Japan was able to capture Singapore, the Western Aleutians, the East Indies, the Solomons, and to threaten Australia. When she lost this control, she was unable to send men, supplies, and ships even to the aid of Okinawa, threshold of the homeland. In the first years of the war, the U.S. range of operation was limited. As the United States reduced Japan's Navy and as her own grew, especially with respect to naval air superiority, it became possible to range more freely, to bypass enemy strongholds, and to omit many grueling campaigns.

Because of the effects of seapower, U.S. landings in Leyte and Lingayen were ahead of schedule. Inability to move on the sea prevented the Japanese from exploiting their strength in the Philippines and from satisfactorily reinforcing their troops at the point of attack. Control of the sea made it possible for U.S. forces to bypass many islands and avoid waters controlled by the enemy.

Seapower permits multiple use of the same force; a small army becomes in effect many armies. With a handful of divisions, the Pacific Area forces drove steadily toward the Japanese home islands. In much of the central and western Pacific, the Japanese had a strong numerical superiority, but a large portion of her

troops never got into combat. Without adequate shipping and naval air power, the Japanese legions were helpless; with a sufficiency, the few U.S. divisions were superior to the many that opposed them.

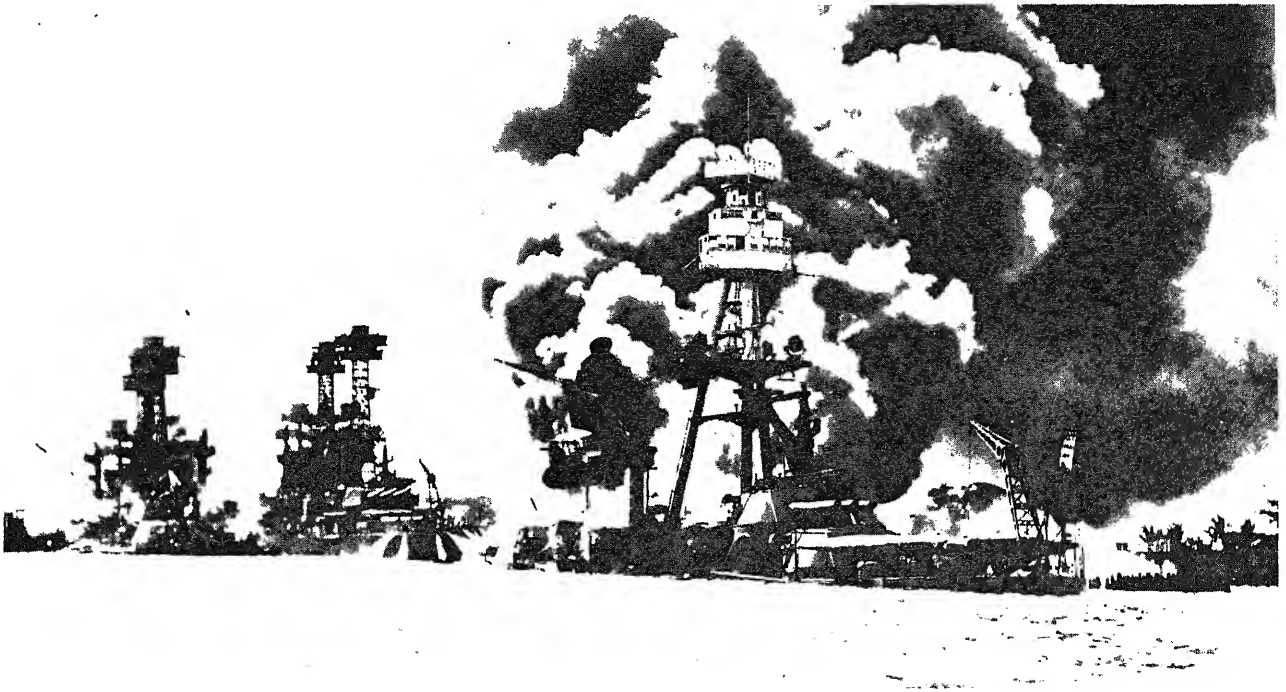
SEAPOWER AND NAVAL BLOCKADE

Seapower means more than controlling the sea for one's own use; it means denying its use to the enemy. This can be partly accomplished by blockade—closing the sea roads to starve the economy of the nation. Some understanding of a blockade's numbing grip can be gained from figures released in a report from General MacArthur's headquarters in Japan following World War II. (General MacArthur was Commander in Chief, Far East Command (CINCFE)).

The peak wartime production of steel ingots in the Japanese Empire occurred in 1943 when approximately 9,600,000 tons were produced. By 1945 Japan's steel industry was producing at the rate of only 120,000 tons a year. The report indicated that 1,800,000 tons of the annual capacity were erased by bombing. The remaining 7,680,000-ton loss in production was due to naval blockade.

Further tangible evidence of the manner in which our sea warfare helped break down Japan's economy is found in another part of this report. In 1941 a total of 4,000,000 tons of iron ore was required by the Japanese steel industry. Of this, some 3,000,000 tons had to be imported from the Asiatic mainland and from the Philippines. As the naval blockade tightened, imports dropped off, and by 1944 the iron content of imported ores added up to less than 30% of the tonnage imported in 1941.

In common with those of other nations, Japan's sea and air fleets were entirely dependent on petroleum for fuel. Nearly all of Japan's petroleum supply was imported. When the blockade applied by American submarines cut this vital supply line in 1944, Japanese naval and air forces were doomed to eventual



134.1

Figure 1-1.—The day of infamy. Although the Japanese sank our battleships at Pearl Harbor, our great force of warships, transports, aircraft, and other components of United States seapower brought final victory.

paralysis. The industrial atrophy induced in Japan by blockade was somewhat slower to take effect, but it was equally fatal to that nation's war effort. It is axiomatic that since the industrial potential is so essential in developing seapower, the destruction of that potential in an enemy nation is of equal importance in weakening its seapower.

Admiral Ernest J. King, appointed Commander in Chief, United States Fleet (COMINCH) 2 weeks after the attack on Pearl Harbor (figure 1-1), summarized the part played by seapower in World War II:

"In the European war, seapower was an essential factor because of the necessity of transmitting our entire military effort across the Atlantic and supporting it there. Without command of the sea, this could not have been done. Nevertheless, the surrender of land, sea, and air forces of the German

Reich on 8 May 1945 was the direct result of the application of airpower over land and the power of the allied ground forces.

"In the Pacific war, the power of our ground and strategic air forces, like seapower in the Atlantic, was an essential factor. By contrast with Germany, however, Japan's armies were intact and undefeated and her air forces only weakened when she surrendered, but her navy had been destroyed and her merchant fleet had been fatally crippled. Dependent upon imported food and raw materials and relying upon sea transport to supply her armies at home and overseas, Japan lost the war because she lost command of the sea, and in doing so lost—to the U.S.—the island bases from which her war-making potential could be destroyed by air."

Scenes of Allied naval forces and of the ceremonies aboard the *USS Missouri* on V-J Day are shown in figures 1-2 and 1-3, respectively.

THE CUBAN QUARANTINE

More recently, the U.S. Navy's seapower was displayed in the Cuban quarantine of 1962. The quarantine was ordered by the President when aerial photography of the island disclosed ICBM launching pads being constructed, as well as the presence of ICBM missiles. Since only two countries in the world had a nuclear missile-production capability, it was obvious where the missiles came from. The President was

convinced that a missile-launching capability in Communist-controlled Cuba constituted a clear and present danger to the Americas. He therefore, on a unilateral basis, imposed a quarantine to prevent the further delivery of missiles. The Navy was alerted immediately to search for, intercept, and turn back any missile-carrying vessels that were en route to the Cuban area.

Within a matter of days, some 180 ships and 85,000 men were directly involved. Ten Marine battalions were afloat, ready for whatever assignment they might be given. Navy forces were searching, around the clock, an area of about 3.5 million square miles for merchant

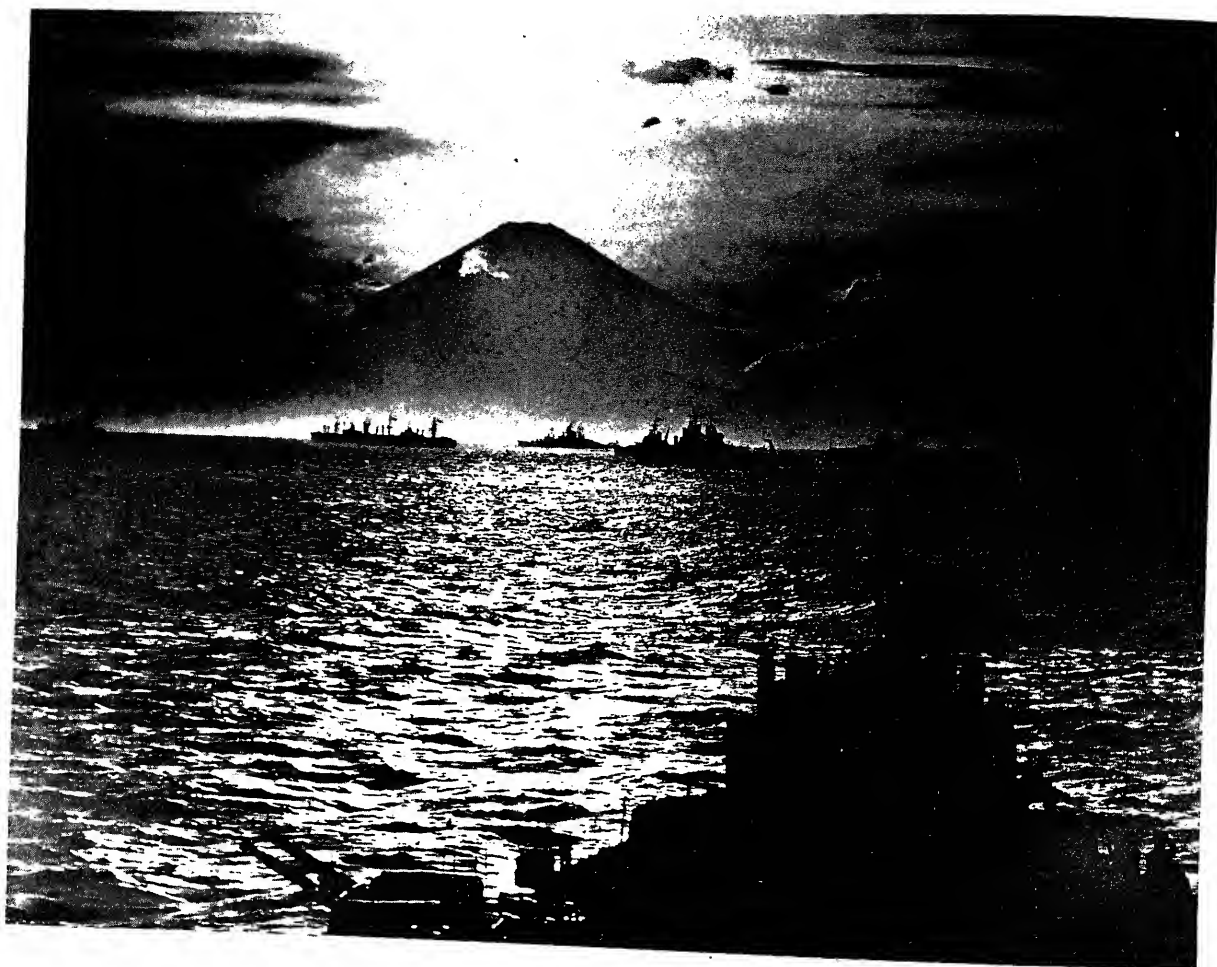


Figure 1-2.—The Sun sets in Tokyo Bay on the Allied naval might gathered there on the eve of world peace, 27 August 1945.

134.2

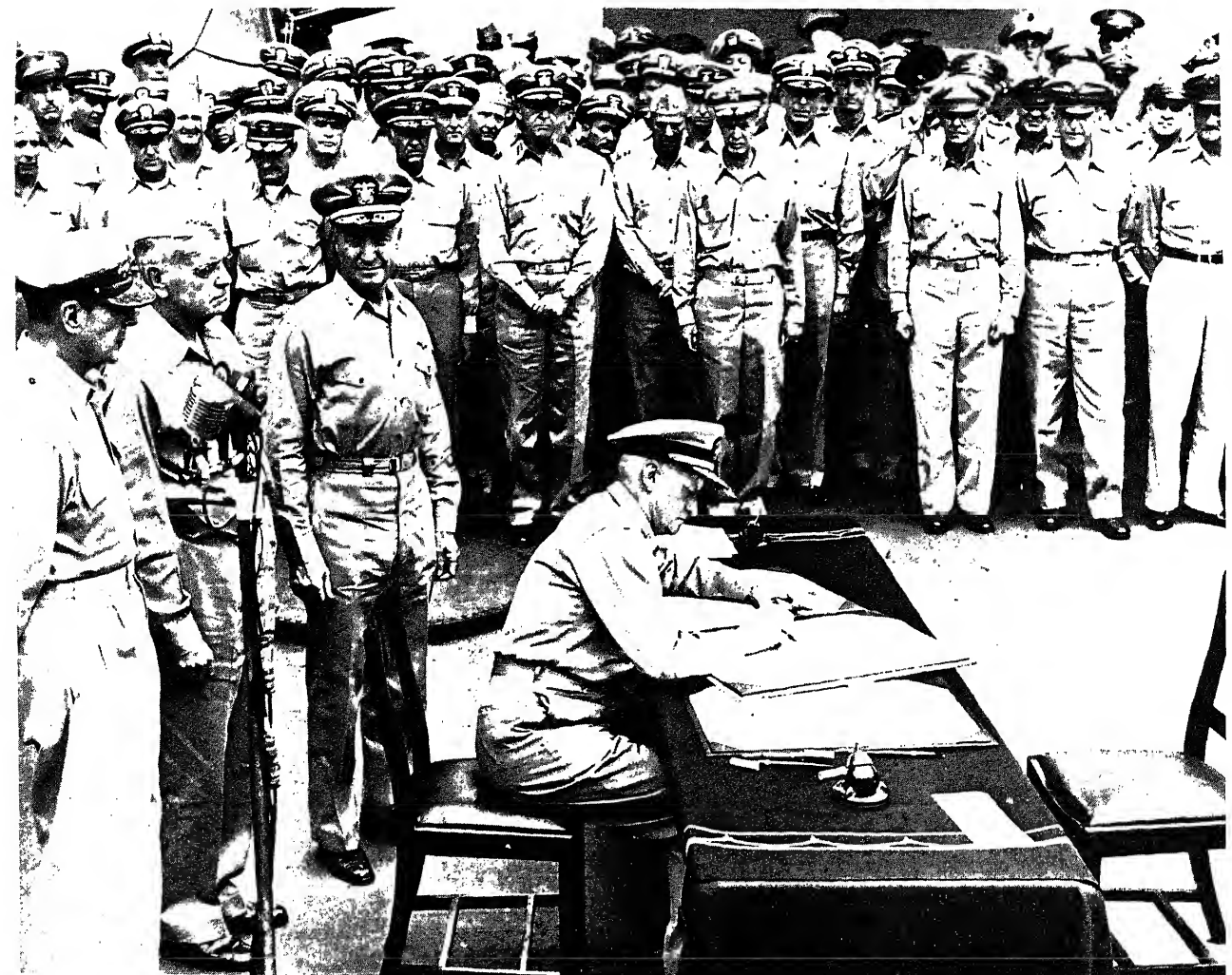
ships and submarines. In support of the quarantine, naval aircraft completed 9,000 flights during 30,000 flight hours.

The Cuban quarantine was a dramatic test of the readiness and ability of our naval forces to respond.

THE EVOLUTION OF SEAPOWER

Mahan's seapower doctrine had its basis in a world that no longer exists. The passing of that

world and a reappraisal of Mahan's philosophy, in the light of today's naval responsibilities and capabilities, has shown flaws inherent in his original concept. Mahan did not envision the relative decline of English seapower and the corresponding rise of three competing industrialized seapowers—the United States, Japan, and Germany. Also, he advocated an arrangement whereby a mother country was enriched and supported by her colonies. This concept has been largely supplanted in the West by capitalistic industrialization and trade. A



concomitant feature of industry allied with science has been the introduction of refined and diverse methods of warfare. The submarine, the supersonic aircraft, and the guided missile were unknown in Mahan's age; and their introduction has necessitated changes in the present connotation of the term "seapower." Finally, Mahan viewed the struggle for seapower supremacy as centered in the Atlantic Ocean and looked upon the Pacific Ocean as an area of only subsidiary importance. A look at World War II shows that this is not so.

These apparent flaws in Mahan's doctrine raise the question whether a seapower concept is still tenable and applicable to modern navies. A close analysis will show the growing importance of seapower today and tomorrow.

No nation has ever been economically self-sufficient. As in the past, nations in the future will need the natural resources and manufactured goods of other nations.

To get these commodities, it is obvious that a means of transportation is necessary to carry the resources and goods to a nation's homeland. Water transportation is presently the most economical and practicable means of transporting this great bulk of material between nations. In peace or war, more than 99% of all international trade moves on the sea.

Use of the sea as a means of transport implies a control of the sea when that use is opposed by other nations. Thus, the initial and primary mission of a nation's navy is to gain control of the sea for that nation and, if necessary, to deny the use of the sea to others. The importance of controlling the sea and denying its use to enemies is as great today as it was in the past. The new inland reach of seapower has had a far-reaching effect on all military strategy. With the advent of missiles from beneath the ocean, supersonic jets carrying nuclear warheads, and the ability to project combat-ready marines far inland, the strategies put forth by Mahan must be drastically revised to include the naval forces in any consideration of land hostilities—in offense or defense.

Mahan's theories show a complete absorption in the importance of seapower. He entertained little hope of an aspiring landpower attaining world pre-eminence in the face of opposing seapowers. However, a philosophy

diametrically opposed to Mahan's appeared in 1919 with the publication of Halford J. Mackinder's *Democratic Ideas and Reality*.

Mackinder did not believe that past history was a record of unbroken seapower mastery, but rather that it was a constant alternation of landpower supremacy and seapower supremacy.

Mackinder's main tenet was that a nation situated in the Heartland of Eurasia (i.e., European Russia and Siberia) could, with improved overland communications and a developing industry, expand to the coastlines of the continent and capture the seapower bases from the landward side. A nation controlling all of Eurasia could easily capture Africa. Therefore, with the combined resources and manpower of the World Island (Eurasia and Africa), the world balance of power would be altered and it would be only a matter of time until the outlying lands (i.e., North and South America, England, and Japan) would fall beneath its domination.

Mackinder made assumptions that have yet to materialize. He took for granted that the Heartland would be an area of extensive, modernized overland communications and the seat of industrial might. The Heartland has developed since Mackinder's time, but not to the extent where it possesses a network of roads and railroads necessary for the shifting of massive landpower from point to point. The Heartland today is still a vast waste in the outskirts of Siberia and the other hinterlands of the Soviet Union. The industrial progress of the last few decades has not made Mackinder's Heartland a center of industry.

From time to time, other writers have questioned the value of seapower in establishing and maintaining a nation as a world power. One of these is Robert Strausz-Hupe. In his *Geopolitics, the Struggle for Space and Power* (published in 1942), he stresses the value of mobility of forces, and contends that landpower plus rail transport appeared to overwhelm and shatter the British Empire. To strengthen his point, he cites several examples, one of which is the threat imposed on outlying British possessions during World War I by German-Turkish landpower "operating along rail lines flung to the gates of Egypt and to the shores of the Persian Gulf."

While it is true that Britain was forced to counter land force with land force, the fact remains that sea transport brought the necessary troops within striking distance of the threatening enemy. Indeed, history does not bear out Mr. Strausz-Hupe as can be seen when one considers the events of World Wars I and II. In both cases, the pendulum of advantage commenced its swing to the side of Britain upon America's entry into the war. Without eventual control of the sea, America would have been as powerless to assist her as might some tiny South Pacific island.

Regardless of the many theories presented by various writers and the merit or lack of merit of those theories, the reader must remember that the free world today faces the most ominous threat in history. To oppose this threat, the United States and her allies must maintain a well-balanced weapons system: sea, land, and air power. Recognizing this fact, the Congress and Armed Forces of the United States are dedicated to building and maintaining the best system possible for the defense of the free world.

THE CURRENT WORLD SITUATION

For all practical purposes, the world today is divided into various camps: those nations under Communist rule behind the Iron Curtain and those free nations outside the Iron Curtain. In addition, there are many countries that maintain a policy of national neutrality. Through various agreements (NATO, SEATO, etc.), the United States can assist with the defense of the free world. The Soviet Union and her satellites, whose boundaries correspond to those of the free world, occupy that portion of the world which Mackinder called the Heartland. Thus, the area inside the perimeter is, essentially, all land.

The area outside the Iron Curtain is mostly water. However, added together, all the lands outside the perimeter amount to three times as much land area and twice as many people outside in the free world as inside in the Communist world. The free world, moreover, contains most of the areas that are highly developed industrially and agriculturally; and it

provides every strategic material necessary for the conduct of modern war.

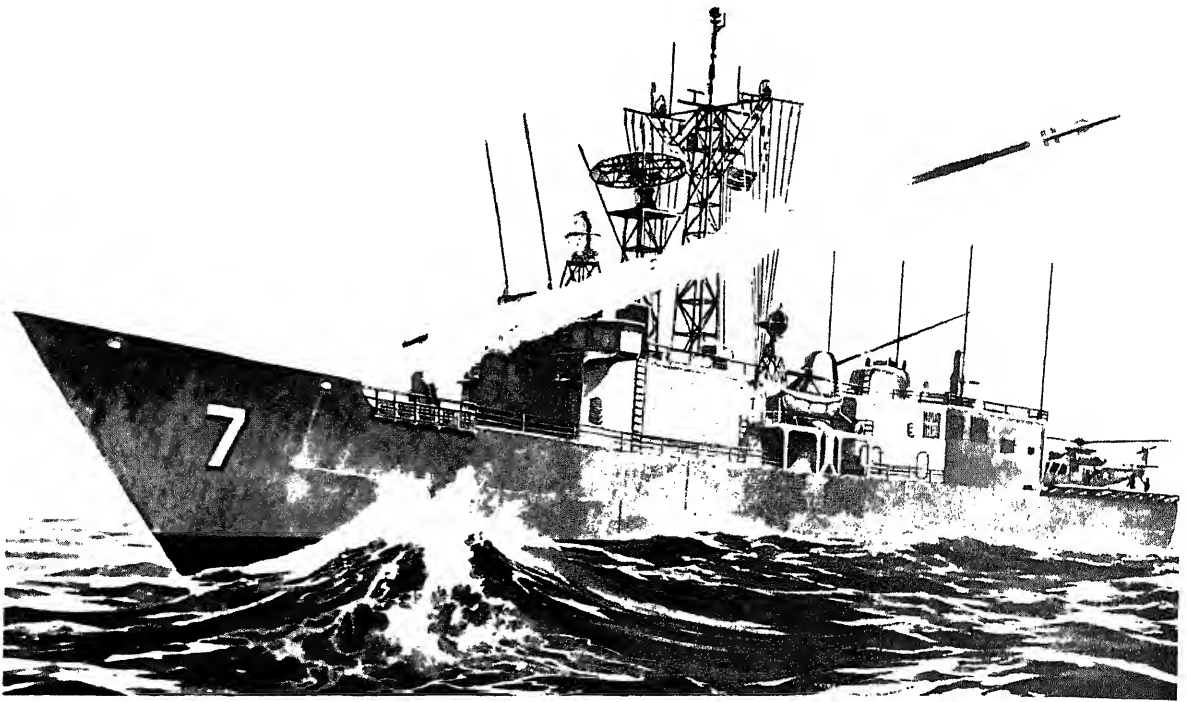
Viewed thus, the situation for the free world appears far less critical than it does in the world Mackinder pictured. In 1947, Mackinder admitted in his last published article that, if enormously productive Western Europe and North America combined forces, they could offset the potential of the Heartland. These areas and much of the free world are now linked together by an interlocking series of treaties.

Militarily, the United States has implemented these agreements with airbases in friendly foreign countries, and by deployment of the 6th Fleet in the Mediterranean and the 7th Fleet off Asia. Geographically, a major unifying factor in the free world is the sea, the only means in our present state of technology for intercontinental assembly or projection of power involving many personnel and much material.

The U.S. Navy's current responsibilities, set forth in the Department of Defense Reorganization Act of 1958, encompass areas inconceivable at the turn of the century.

The primary functions of the Navy and the Marine Corps are to organize, train, and equip Navy and Marine Corps forces for the conduct of prompt and sustained combat operations at sea. Operations include sea-based aircraft and land-based naval air components. Specifically, the forces seek out and destroy enemy naval forces and suppress enemy sea commerce, gain and maintain general naval supremacy, and control vital sea areas and protect vital sea lines of communication. They also establish and maintain local superiority (including air) in an area of naval operations, seize and defend advanced naval bases, and conduct such land and air operations as may be essential to the prosecution of a naval campaign.

The Navy also provides forces for joint amphibious operations and is responsible for training all forces assigned to these operations in amphibious doctrine established by the Joint Chiefs of Staff. Other specific responsibilities assigned to the Navy are naval reconnaissance, antisubmarine warfare, protection of shipping,



134.181

Figure 1-4.—Artist's concept of the guided-missile frigate (FFG-7) Oliver Hazard Perry.

minelaying, and controlled minefield operations. In conjunction with the other services, the Navy must provide forces for the defense of the United States against air attack.

It is easy to see that the Navy's mission has increased in complexity since the time of Mahan. As a result of this increased complexity, a massive modernization of Navy ships, aircraft, and weapons has been undertaken. Basically, the program has taken three forms: (1) the speedup of research and development in order to find new weapons, (2) laying up of old ships, in order to save operating and overhaul cost, and putting this money into new construction, (3) the "hi-low balanced mix" concept; that is, purchasing a few highly effective ships and aircraft (such as CVNs, SSNs, and the F-14 aircraft) while at the same time developing new classes of low-cost ships such as the guided-missile frigate and sea control ship. (See figure 1-4.)

The Navy has entered a new phase of scientific warfare—one in which nuclear weapons

and guided missiles are the primary destructive weapons. Conventional weapons, of course, are still maintained and improved. Such weapons enable the Navy, with its Marine component, to deploy rapidly and to apply the force necessary to contain a limited war.

The Navy's current scientific projects range from Earth navigation and communication satellites to the improvement of nuclear propulsion in which the Navy continues to lead the world. The Navy's Polaris missile, operational in nuclear-powered submarines at sea, was the first IRBM (intermediate-range ballistic missile) to employ the solid-propellant motor with its greatly increased simplicity and reliability. Following the success of the Polaris missile, the Poseidon and Trident missiles, with extended range and multiple warheads, were developed.

Other Navy achievements include pioneering the route from the Pacific to the Atlantic beneath the north polar ice cap and the new departures in communications, radar,

underwater acoustics, oceanography, and a host of other scientific fields.

Historically, the Navy's radius of action was limited to the enemy's coastline, plus the range of the ship's guns. With the development of high-performance aircraft and ballistic missiles, the Navy's radius of action now spans continents.

Ships, because of their mobility, are not the accessible targets that shore bases are. Furthermore, as a partial deterrent to the destructive capabilities of nuclear weapons, the dispersal concept has been added to fleet doctrine.

The Navy's paramount objective in wartime is to maintain control of the sea for the United States and her allies, and to destroy the enemy's seapower, including access to his ports. A sea blockade, which will eventually break down a hostile nation's economic system, is used to accomplish this objective. Should the blockade fail to destroy the enemy's seapower completely, the fleet will still provide a peripheral defense on the farthestmost frontier.

Such a peripheral defense, composed of surface ships, submarines, and aircraft, is both effective and economical. Its principal strength lies in its ability to shift readily from defense to offense without long preparations and accumulation of forces.

At the international level, treaties of mutual defense obligate the United States to defend distant parts of the Earth—parts distant but reachable by moving over the sea. These treaties represent a voluntary association of free people to oppose attacks by hostile nations.

In the Caribbean, an amphibious ready group with an embarked Marine Corps battalion landing team is on station to contribute by its continual presence to maintaining the stability of that area. A battalion of Marines also is stationed in Guantanamo for the security of the naval base.

U.S. NAVY DEPLOYMENT

Four American fleets (figure 1-5) stand worldwide watch, each serving the Navy's basic mission of protecting national security. The 2nd Fleet, operating from the world's largest naval

base at Norfolk, Virginia, patrols the western Atlantic across some of the world's most important trade routes. Ships and personnel of the 2nd Fleet rotate with those of the 6th Fleet, which moves in the nearly landlocked Mediterranean Sea. We could describe the 6th as "keeper of the doors."

The Mediterranean has been an influential factor in world affairs since the dawn of history. Gibraltar, the front door of the Mediterranean, is a vital commercial chokepoint. Whether it is open or closed, it affects the destiny of nations. There is also a side door to the Mediterranean—the Bosphorus and Dardanelles—through which Soviet ships enter.

During the Arab-Israeli wars in June 1967 and November 1973, there were marked increases in the size of the Soviet Mediterranean squadron. From a previous high of 23 ships, Soviet naval strength rose from 35 to 40 vessels. It was the first time in recent years that the Soviets have so deliberately used their fleet to support their foreign policy. Since the war in the Middle East, a stepped-up program of Mediterranean port visits by Soviet ships seems clearly aimed at increasing Soviet influence in that area. The level of Soviet naval activity provides additional reasons for the continued presence of a strong 6th Fleet. The 6th Fleet is built around two attack carriers and an amphibious striking force with an embarked Marine Corps battalion landing team. The frequency of deployment of antisubmarine groups to the Mediterranean from the Atlantic has been increased because the Soviets maintain a submarine force in the Mediterranean.

Across the world from the Mediterranean, the 3rd Fleet, operating off the west coast of the United States, trains and shakes down the personnel and ships that will rotate to the 7th Fleet in the Pacific.

Like the 6th Fleet, the 7th is in a forward trouble area—the whole of the Western Pacific where raged the unforgettable sea battles of World War II.

The Vietnam conflict exemplified the kind of war the Communists have promised in many lands for years to come—intermingling the most primitive guerrilla operations with futuristic combat of the electronic age. To counter this

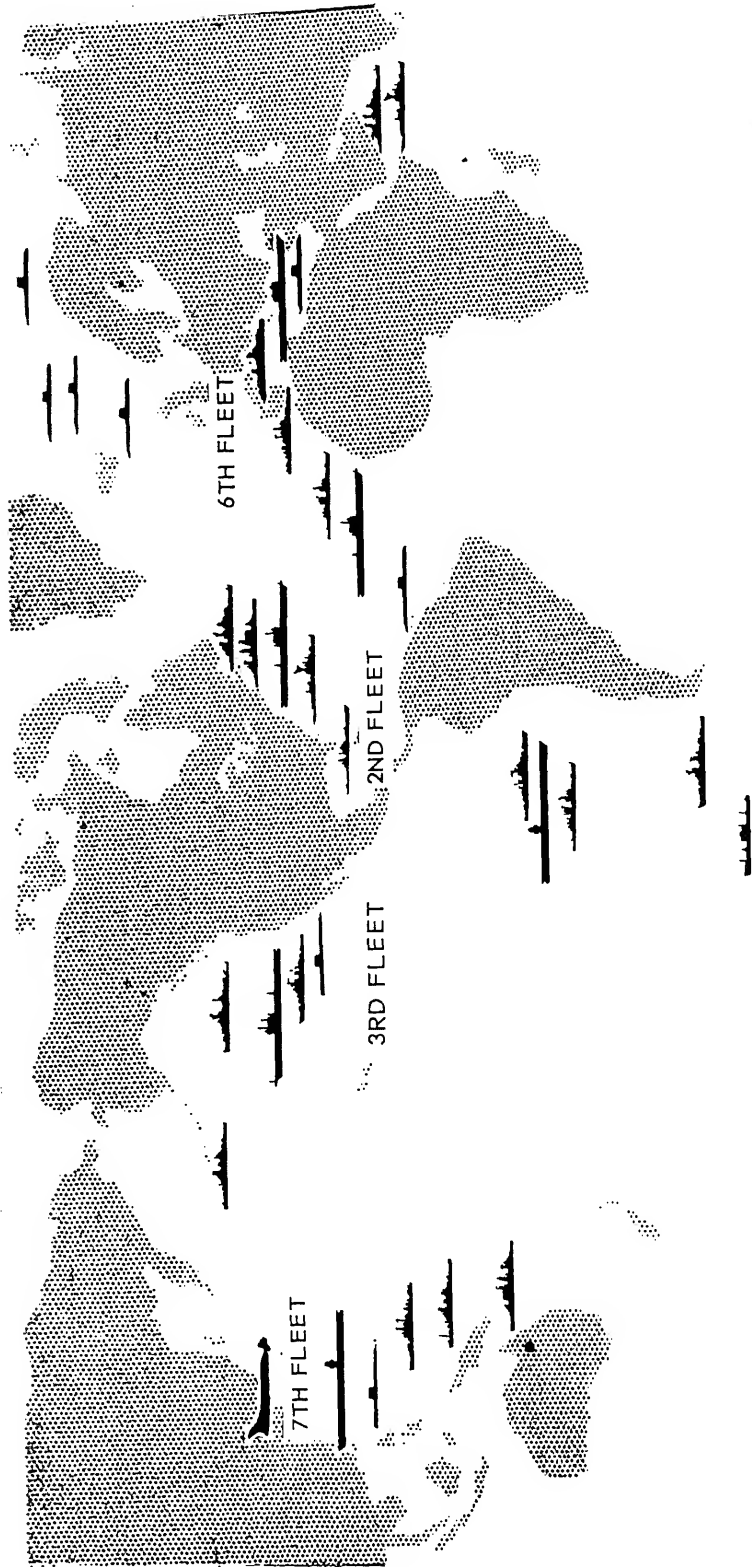


Figure 1-5.—The U.S. Navy, deployed worldwide, is aptly described as "Guardian of the Seas." Seapower—or lack of it—is a large portion of a country's national posture.

13.76(134F)

threat, the 7th Fleet provided dramatic evidence of the Navy's ability to project the national policy of the United States wherever water permits navigation.

Five attack carriers were deployed to WESTPAC, with three of them constantly on line in the Tonkin Gulf area. Embarked carrier air wings, which furnished almost half of the total tactical effort in Vietnam, destroyed or heavily damaged hundreds of military targets in North Vietnam and successfully interdicted land transport as well as waterborne logistic craft on rivers, bays, and along the coastal routes.

Sharing importance with attack carrier operations were amphibious operations on the coast of the Republic of Vietnam. Two amphibious ready groups with embarked Marine special landing forces were committed to the Vietnam effort. Each group was capable of conducting assault over the beach by landing craft and/or by helicopter envelopment. More than 50 battalion-size amphibious operations were conducted after the initial landings in March 1965. The mobility of the amphibious groups and their readiness to strike on short notice kept the enemy off balance, disrupted his logistical support, and denied him profitable coastal areas.

The Navy provided gunfire support from May 1965 until the end of the United States involvement. Targets destroyed or damaged included storage areas, military areas, missile sites, and railroads. The battleship *USS New Jersey* was recommissioned in order to provide a much needed punch in gun range and explosive weight to gunfire support requirements. A heavy cruiser, during this era, could fire an 8" projectile about 14 miles. Any one of the *New Jersey's* 16" guns could hurl a projectile four times the weight of the cruiser's, a distance of 20 miles, and it could penetrate 30 feet of reinforced concrete. After successfully completing its mission the *New Jersey* was again decommissioned.

Other direct supporting operations included coastal surveillance (Market Time) to interdict Viet Cong sea lines of communications along the coast of the Republic of Vietnam; river patrol (Game Warden) operations along major

waterways from the Cambodian border to the South China Sea to exert pressure on insurgents in the strategically important Mekong Delta; and also in the Mekong Delta, an Army-Navy riverine shallow-draft strike force that had the primary function of penetrating Viet Cong fortified areas along the rivers and canals of the Delta.

COMMERCE AND OCEANOGRAPHY

To this point, the main tenor of the chapter has been raw seapower. Naval power, however, is only a part of total national seapower. Since the ocean is the Navy's operating environment, the Navy is necessarily concerned with all of the Nation's interests in that environment. There are many other facets to the term "seapower" that could be mentioned here, but two certainly must be considered. One, maritime commerce (mentioned several times previously), has been in existence for thousands of years. The other, oceanography (the study and exploitation of the sea), is a relatively recent undertaking.

Maritime Commerce

There was a time when Americans believed that the country's raw materials were inexhaustible and, thus, that the United States could exist independent of other nations. The increasing population and growing rate of consumption of practically every commodity has completely altered this concept. Today the United States is dependent on other nations for many commodities needed to keep the economy strong, to keep people at work, and to manufacture needed goods.

There are no less than 77 resources that the United States cannot do without if it is to maintain the present economy. For example, manganese is needed to make steel; 85% of that needed is imported. Of the columbite used in the construction of nuclear reactors, as a stabilizer in stainless steel, and for the manufacture of rockets and missiles, 90% is imported. Eighty-six percent of the country's bauxite, from which aluminum is refined, is imported. Ninety percent of the chromite used

to toughen steel and other defense materials, and more than 90% of the tin needed are imported. In addition, the United States annually consumes one-third of the entire world supply of oil.

Almost half of the free-world mineral production is channeled to the needs of the U.S. industrial machine. Of the 77 vital resources, only 11 are found within her own borders. In other words, the United States is a raw-materials-deficit nation, dependent upon waterborne commerce to bring to her shores from all corners of the Earth many primary products so essential to a 20th-century industrial system. (The United States could not produce, in generations, enough planes to move all the goods that now travel by ships.) In this context, each of the states individually depends on shipping. Illinois, for example, probably first in exports of farm products, is among the first in imports of other commodities. On the other side of the coin, foreign nations depend on American raw materials to maintain healthy economies at home.

The doctrine of freedom of the sea is acknowledged by all nations under international law. Whatever the law of the sea, when nations fight they cross the sea at their own risk. The forces of each will do their utmost to deny passage of commercial shipping to the other(s) whenever and wherever they can. Throughout history, the great and powerful nations have been those able to maintain control. Loss of seapower has caused the fall of empires dating from that of Persia, in ancient times, to that of Japan more recently.

Because a strong American defense posture depends upon a modern, often revolutionary, highly productive industrial system, shortages of essential raw materials would strike a blow at the national security as well as the health and stability of the domestic economy.

To ensure national security and sustain the economic vitality of 200-million Americans, it is critically important that—

1. Raw materials from throughout the world be fed into the U.S. industrial machine by waterborne commerce.

2. Manufactured products be moved onto the world marketplace by ocean shipping.

3. Sealanes be kept open and secure in time of peace and tension, and denied to the enemy in case of war.

Keeping the sealanes open is a vital mission of the U.S. Navy. These lanes are truly the lifelines of America.

The Navy's effort in Vietnam was a classic portrayal of the effectiveness and flexibility of this facet of seapower. At least 97% of all military equipment and supplies needed to support the United States and its allies in Southeast Asia was provided by sealift. This was possible only because the U.S. Navy controlled the sealanes to that area, permitting dozens of cargo ships to enter Vietnamese ports every day.

Oceanography

All the oceans on Earth form a single, vast sea some 40 times the size of the United States. National interest in the sea is growing rapidly, and attitudes toward the sea are changing dramatically.

At varying depths extending to thousands of feet live more forms of animal life than upon dry land. Many minerals, such as gold, iron, magnesium, and diamonds, are available beneath the waters; but to what extent is not known. Food has always been known to be there. Again, however, the potential is not known; and this knowledge could be a vital element of future survival.

Man is increasingly turning to the sea for uses heretofore restricted to the terrestrial environment food, freshwater, minerals, energy, perhaps a key to weather control, perhaps even living space. Only time will tell what man's ventures on the floor of the sea will bring. His technology may offer a whole new world. Already there has been conceived an oilfield on the ocean bottom where people can work and live. The science of aquaculture may in time make possible underwater farms where plants and fish are cultivated and processed for a protein-hungry world.

As a source of food and resources, perhaps for future prosperity or survival, the sea has become the birthplace of the age of oceanography. To explore this realm, the Navy has an oceanographic fleet of surface ships and submersibles that studies the nature of the bottom, winds, weather, and migration of fish, and that listens to the nature of sounds within the waters to improve sonar for antisubmarine warfare and to find ways to communicate from the ocean depths.

The knowledge and technology gained by the Navy in implementing its security mission will contribute to and accelerate this expansion into the ocean. The Navy, in effect, will exert a large influence on the move to utilize the sea. It appears certain that new Navy missions, tasks, and capabilities will develop. The Navy will require, and in fact is working toward, a capability to operate anywhere in the world ocean at any time. Scientific knowledge of the ocean has become a prerequisite to operations as a global seapower.

The sea belongs to all people and all nations. Just as the protection of great navies nourishes seaborne commerce, so today the Navy uses and enhances its seapower to protect and encourage the right to explore and prospect this newest of man's frontiers on Earth.

NATIONAL STRATEGY

Balanced seapower is an essential ingredient of a flexible national strategy. Seapower is selective of time and place in its application and discriminate in the means and degree with which it can be used. It is not constrained by any one course of action. U.S. naval forces can contribute significantly to the entire spectrum of warfare, from counterinsurgency to and including general war. Exploitation of the sea as an effective dispersal area is increasingly desirable and necessary.

The forces of today's Navy can meet any type of aggression from the most primitive to the most sophisticated. The variety of options inherent in U.S. naval forces is in itself a strong deterrent. If deterrence fails, however, these same forces will permit the United States to control a conflict within selected limits or to escalate the conflict, if so ordered.

Remembering the lessons of World War II, of Korea and Lebanon and Cuba and Vietnam, the United States has learned that strength has a logic of its own. Being right is not sufficient; it takes might to preserve that right. The power of the U.S. fleet reflects the power of the land it must defend and of all lands that join with her in a mutual need. The United States Navy is a result of past lessons learned, of a troubled present, and of an unpredictable future.

CHAPTER 2

MAKERS OF NAVAL TRADITION

A visitor to the Naval Academy at Annapolis is impressed by the innumerable reminders of our naval heritage. Here is found the memorial to John Paul Jones, which keeps alive his memory so that those who follow may go on with lasting inspiration. In Bancroft Hall hangs Perry's flag of blue, bearing in rough, white muslin letters Lawrence's famous slogan, "Don't give up the ship." On all sides appear monuments commemorating the names and deeds of great American naval heroes. There is the wide brick walk, called Decatur Walk, that leads to the Tripoli Monument; the gymnasium, known as Macdonough Hall; and the massive armory—Dahlgren Hall. There are Luce Hall, Mahan Hall, Maury Hall, and Sampson Hall, which contain the recitation rooms for the midshipmen.

These men who have been so honored, and many others, are the makers of naval tradition.

AMERICAN REVOLUTION

The Revolutionary War presents the only period in its history when the United States stood in desperate straits because of lack of imported strategic materials. Thanks to the low state of efficiency of the usually invincible Royal Navy and to the resourcefulness of the little American Navy and other Yankee mariners, General Washington was able to secure what he needed from beyond the seas. Also, in 1778, France, sympathetic from the first with the revolting colonies, openly entered the war on our side, and she was soon followed by Spain and Holland. British possessions in every quarter of the world were attacked by the powerful French forces, and Britain's internal struggle

against her colonies was transformed into a world war in which all the great maritime powers were engaged. The chief theater of naval activity was the West Indies, where British interests clashed with those of her enemies—France, Spain, and Holland.

Unlike the Navy of today, the Continental Navy that fought America's war for independence was small and weak. It was handicapped by coming into existence only after fighting had begun. In this makeshift force, two-thirds of the ships were converted merchantmen. The crews were drawn from merchant vessels, fishing craft, and even from the Army. In addition, there were state navies, but these vessels were small and were designed for river and harbor defense. There were also swarms of American privateers (privately owned craft outfitted for war), which engaged primarily in the capture of British prizes. But the American ships were pitifully few compared with the hundreds flying the white ensign of the Royal Navy.

JOHN PAUL JONES

Emerging from this war was one of the Navy's greatest heroes and tradition-makers—John Paul Jones (figure 2-1). There were others, among them John Barry, Lambert Wickes, and Gustavus Conyngham. But Jones embodies many of the attributes that a nation traditionally assigns to a great leader.

Of his many contributions to the Navy's great traditions, none stands out more conspicuously than his refusal to acknowledge defeat. After the classic action between Jones' ship, the *Bonhomme Richard*, and the British



Figure 2-1.—John Paul Jones, father of our highest naval traditions, represents the seaman, leader, officer, and gentleman at his best.

frigate *Serapis*, Jones reported that he faced an enemy of greatly superior force. *Bonhomme Richard* was an old, converted merchant hull mounting about 40 guns, only six of which were 18-pounders. James Fenimore Cooper in his *History of the Navy of the United States of America* conceded that without the 18-pounders, so far as her guns were concerned, she was about the equal of a 32-gun frigate. *Serapis*, rated as a 44-gun frigate, then mounted 50 guns. She was new and superior to *Bonhomme Richard* in maneuverability.

Upon firing the first broadside, two of Jones' 18-pounders burst causing the rest to be abandoned. At this point the battle became a contest between a battery of 12-pounders and a battery of 18-pounders. Several more broadsides delivered at close range soon reduced *Bonhomme Richard* to a critical state. Her hold was flooded with three feet of water; her heavy guns were out of commission; half the crew had been killed or wounded; her rudder and rigging had been shot away; and fires were fast approaching the magazine. It was at this point that Captain Pearson of the *Serapis* called to Jones, asking whether he had struck his colors. Though barely able to keep afloat, Jones thundered back his famous answer, "I have not yet begun to fight." These fighting words inspired his men with his own determined will to win.

After fighting for nearly 4 hours, the British surrendered; and since no one else dared venture on deck, Captain Pearson himself hauled down the colors on his battered ship. The spirit of the offensive, the will to victory, was never better demonstrated than by John Paul Jones. His immortal "I have not yet begun to fight" inspires Americans today as it did nearly 200 years ago.

Jones' victories were not accidents. In moments of stress, he mingled with his crew, cheering them on. He declared, "I like my men, and I know how to make them like me." A shipmate once said of Jones: "He was in everybody's watch and everybody's mess all the time. In fact, I may say that any ship Paul Jones commanded was full of himself all of the time."

After losing the *Serapis*, Captain Pearson at his court-martial made the amazing and illuminating statement about Jones:

"Although more than half the crew were French—at any rate not Americans—long before the close of the action it became apparent that the American ship was dominated by a commanding will of the most unalterable resolution, and there could be no doubt that the intention of her commander was, if he could not conquer, to sink alongside. And this desperate resolve was fully shared and fiercely seconded by every one of his ship's company. And if the Honorable Court may be pleased to enter an expression of opinion, I will venture to say that if French seamen can ever be induced by their own officers to fight in their own ships as Captain Jones induced them to fight in his American one, the future burdens of His Majesty's Navy will be heavier than they have heretofore been."

Lord Sandwich, first Lord of the British Admiralty, wrote to one of his commanders, "For God's sake get to sea immediately. If you take Paul Jones you will be as high in the estimation of the public as if you had beat the combined fleets." Such was the British evaluation of the American Navy's greatest combat leader.

This sailor of fortune was born in Scotland in 1747. As a youth he served several years as midshipman in the Royal Navy and studied both seamanship and English by the forecandle lamp. His concept of what an American naval officer should be is evident in his statement, "None other than a gentleman as well as a seaman both in theory and practice is qualified to support the character of a commissioned officer in the navy nor is any man fit to command a ship of war who is not also capable of communicating his ideas on paper, in language that becomes his rank."

His attitude on peace and war appears frequently in his writings: "In time of peace it is necessary to prepare, and be always prepared,

for war at sea.” He added, however, “I have always regarded war as the scourge of the human race.”

WAR WITH FRANCE

After the Revolutionary War the fortunes of the Navy declined, and by 1785 its last ship had been sold. Little remained except fighting traditions. When the new Federal Constitution went into effect in 1789, the War Department was charged with both the Army and the Navy, a burden then consisting of a few hundred soldiers—and no ships or marines.

This absence of naval strength soon proved disastrous, because Barbary pirates began capturing our merchant ships and imprisoning their crews. In 1794 public sentiment moved Congress to authorize the building of six frigates to protect our interests. Here was the beginning of the permanent Navy of the United States.

JOSHUA HUMPHREYS

President Washington allocated the task of designing these ships to Joshua Humphreys, a Philadelphia Quaker, who thus became our first naval constructor. Not only a technical genius, Humphreys was also a farsseeing student of naval history and exerted a tremendous influence upon the American Navy. He believed that our “vessels should combine such qualities of strength, durability, and swiftness of sailing, and force, as to render them superior to any frigate belonging to the European Powers.” He departed from the conventional standards and designed the best frigates that sailed the seas—frigates that could run or fight at will, frigates that could fight on their own terms. The chief innovations were provisions for heavier batteries, thicker timber, finer lines, and longer, stouter spars than those of frigates of other powers. Several years later the Royal Navy paid a compliment to Humphreys’ skill by constructing frigates according to his designs.

Humphreys drew up plans for the six famous frigates, the *United States*, *Constitution*, (figure 2-2), *Constellation*, *President*, *Chesapeake*, and *Congress*. Two of these ships, the *Constitution*

and the *Constellation*, are still afloat! In building them, Humphreys broke sharply with current naval ideas, displaying virtues tremendously valuable to any nation—a friendliness to innovation, a willingness to experiment.

OPENING HOSTILITIES

Enemies other than the Barbary pirates soon harassed the defenseless United States, for both France and England, then in a death struggle, began to plunder American merchantmen. While a treaty with Great Britain relieved the friction with that country, our relations grew worse with France, who charged us with treaty violation. Captures continued, and when French privateers began operating off American harbors, even the



Figure 2-2.—The new and radical USS *Constitution*, built for speed and firepower, helped to rid the Mediterranean of the Barbary pirates.

patient Congress was aroused and decided to take immediate and vigorous action.

The Navy Department was established in 1798 and Benjamin Stoddert of Georgetown, Md., was appointed the first Secretary of the Navy. Again, as in the Revolutionary War, a fleet had to be created with war already in progress. Our small Navy, therefore, was immediately expanded; numerous naval officers were appointed for active duty; recruiting officers in the principal ports along the Atlantic coast put on a drive for seamen. John Adams wrote for the service a set of Navy regulations.

The Marine Corps was formally organized. Although no actual declaration of war was made, Congress authorized the Navy to retaliate and to seize armed French vessels within the jurisdictional limits of the United States or on the high seas. The quasi-war with France was on.

A naval war, this conflict was waged for the most part in the Caribbean. The cost to France proved so high that the French Directory was ready to sue for peace by 1801. American victory was largely due to another leader who endowed the Navy with great traditions.

THOMAS TRUXTUN

"Care for your men; see that each understands his duties; exact instant obedience; superintend everthing; practice daily with the guns."

This simple formula for victory over an enemy fleet was devised by Thomas Truxtun, the outstanding officer in the war with France. An expert seaman and a strict disciplinarian, Captain Truxtun (figure 2-3) was one of the first to work out a basic philosophy on the relations of officers and men that still is applicable today.

Although his fame is derived principally from two decisive victories that he attained over the French, he may best be remembered by the examples he set in the handling of men. The bluejackets who today look up to their officers, and the officers who interest themselves in the well-being and work of their men are following

practices initiated by Captain Truxtun. One hundred and fifty years ago, when enlisted men were often punished savagely and without justice—and looked upon as fighting mechanisms rather than as human beings—he insisted that his officers treat their men courteously but firmly and that the men respect and obey their officers.

In language that could not be misunderstood, Captain Truxtun wrote:

"It is not to be expected that the Lieutenants of Ships are to remain idle and indifferent spectators of what is going on, but on the contrary it is absolutely necessary that they overlook the duty of every department on board.

"An officer in carrying on his duty should be civil and polite to everyone, for civility does not interfere with discipline.



134.6
Figure 2-3.—"Take care of your men." Captain Truxtun insisted on justice and consideration for enlisted men.

“An officer is never to lose sight of the humanity and care that is due to those who may really be sick or otherwise stand in need of his assistance.”

Truxtun's attitude toward his men developed as a result of his experience during the Revolutionary War when he was a successful privateer captain working closely with the Navy. He could not help noticing and regretting that many naval officers, slack and indolent, cared too little about a taut ship. As a captain of the *Constellation* during the war with France in 1799, he defeated *L'Insurgente* (figure 2-4) and the *Vengeance* and found here an opportunity to instill his own martial spirit in his crews.

The battle against the *Vengeance* began at 2000 and lasted until 0100. In it, a teen-aged boy, a midshipman, lived up to what the Navy today calls “the highest traditions of the naval service.” When a sailor told Midshipman Jarvis that the mainmast was tottering and that he should come down before he be killed, Jarvis replied, “If the mast goes, we go with it. Our post is here.”

The next roll of the ship sent the mast crashing and splintering over the side and threw Jarvis to his death, far out into the black water. In tribute to the courage and magnificent discipline that characterized this boy's act, Congress passed the following resolution: “The conduct of James Jarvis, a midshipman of the *Constellation*, who gloriously preferred certain

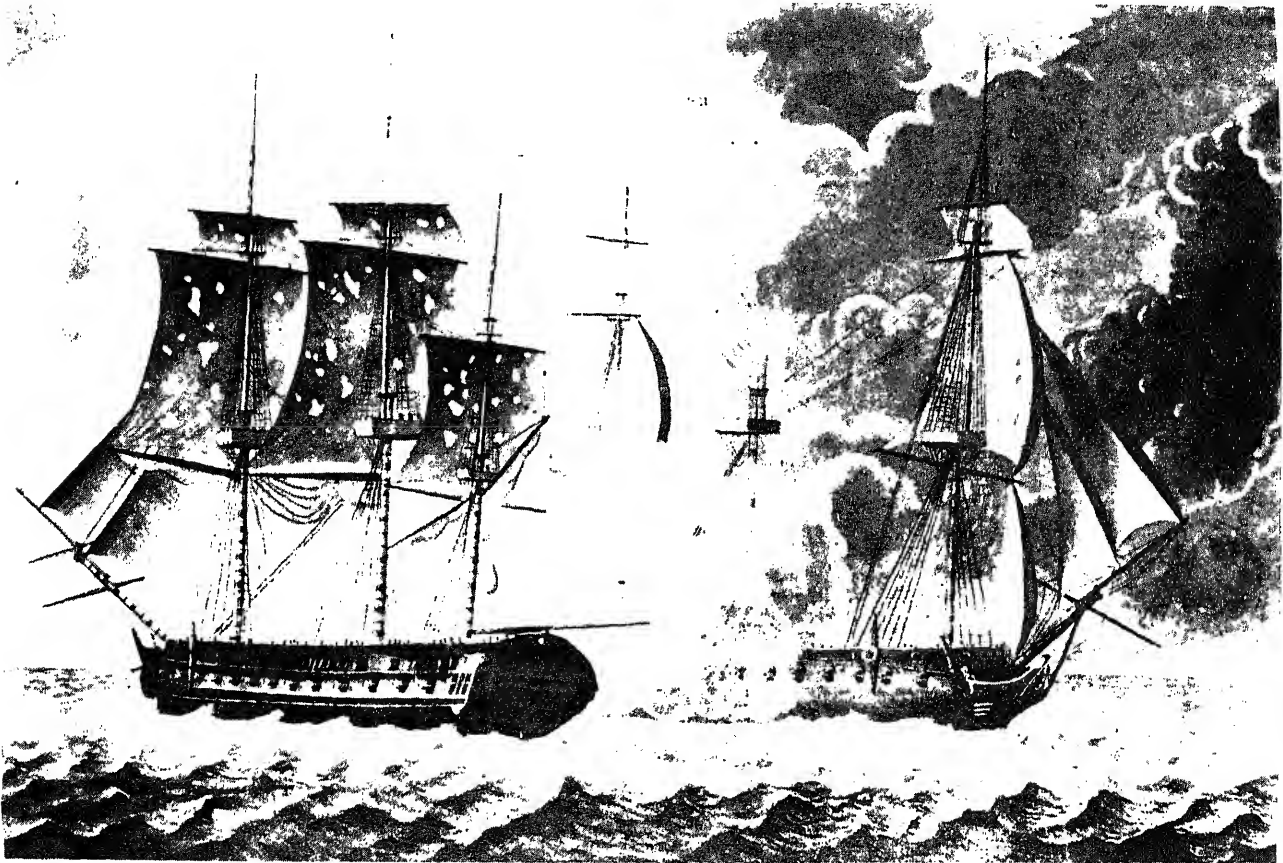


Figure 2-4.—No rangefinder was needed in this slugging match. The *Constellation*, under Truxtun, defeated *L'Insurgente* in 1799. Strict—but fair—discipline and daily gun practice were partly responsible for the ship's efficiency in battle.

134.7

death to the abandoning of his post, deserves the highest praise; and the loss of so promising an officer is a subject of national regret."

Good leadership means good followership. Dedicated to his duty, Truxtun evoked a similar response from his men.

WAR WITH TRIPOLI

Tempted by the lure of unprotected American commerce and dissatisfied with the small tributes the United States was paying under the terms of an earlier treaty, the Bashaw of Tripoli in 1801 declared war on the United States.

In answer to this challenge, Commodore Edward Preble in the *Constitution* was sent to the Mediterranean in command of a squadron.

STEPHEN DECATUR

During the war with the pirates in the Mediterranean, a dramatic incident occurred that was influential in molding the traditions of our youthful Navy. The frigate *Philadelphia* had fallen into the hands of Tripolitans and was now an important addition to their harbor defenses. It was young Lieutenant Stephen Decatur who went to Commodore Preble and volunteered to destroy this captive frigate, built by popular subscription in his home city and first commanded by his father. He, with 74 comrades, including Charles Morris, James Lawrence, and Thomas Macdonough, stealthily entered the harbor at night in a small ketch; they were guided by Salvatore Catalano, a Sicilian pilot who knew the harbor of Tripoli and could speak Arabic. Within minutes they had complete possession of the ship, the foe having been cut down or driven into the sea. Combustibles were passed aboard, and soon the ship was burning fiercely. Several minutes later the boarders, with but one man wounded, were back in their ketch and, under fire from shore batteries, they left the illuminated harbor.

Perhaps no act in the first half of the 19th century thrilled Americans more than the destruction of the *Philadelphia*. This spectacular feat made Decatur the most striking figure of the time and prompted Admiral Nelson to call it "the most daring act of the age." Spectacular exploits were commonplace in Decatur's career,

but they were not the feats of a reckless warrior. He was a thoughtful strategist and an expert tactician. He was, as well, an adept diplomat and a skilled administrator. Like Paul Jones (who could turn an excellent phrase) and Truxtun (who wrote a book on navigation), Decatur was not one-sided. Versatility, too, is a Navy tradition.

PREBLE AND "HIS BOYS"

Commodore Edward Preble (figure 2-5) fought as a lieutenant in the American Revolution and later in the war with France. He



134.8

Figure 2-5.—"Take care of your officers." Commodore Edward Preble commanded the American squadron that smashed the might of the Barbary pirates in the Mediterranean during 1803-4. The training that he gave his young subordinates (who came to be known as Preble's boys) at that time paid dividends in the War of 1812, when they achieved 17 out of the total of 18 naval victories.

believed in Truxtun's ideas and expanded them. Having served during the Revolution, he, too, realized the need for justly administered discipline. Like Truxtun, he was keenly interested in his bluejackets; their care and fair treatment absorbed his attention. Preble also shared responsibility with his officers and encouraged them to offer new ideas. He was generous in giving his subordinates due credit for achievements in the squadron and in urging promotions and honors for those who had earned them. The mutual regard between the commodore and his young officers (all the captains and lieutenants were under 30 years of age) made the fleet singularly united in spirit.

Preble taught his subordinates the necessity for absolute obedience, unyielding courage, and 24-hour-a-day efficiency, which have continued to be the standards of the American Navy. Proof of Preble's stellar leadership was attested in the War of 1812, when his "boys" scored 17 of 18 victories won by the American Navy in combat.

WAR OF 1812

Although the Navy was outnumbered 40 to 1 in the second war with Great Britain, and by 1814 had suffered severe reverses (our coast was tightly blockaded, our ships were driven from the high seas, and our capital, Washington, had been burned), nevertheless, early in the war it fought a series of frigate and sloop-of-war duels that resulted in astounding victories and gained for the Navy a world reputation. The reasons for these victories are not hard to find. We had the best frigates in the world—the tradition of Humphreys; we had the best gunnery in the world—the tradition of Truxtun; our moral was high—the tradition of Preble; and our Navy had a great fighting spirit—the tradition of John Paul Jones.

These brilliant frigate victories on the high seas had little effect on the course of the war itself, but they contributed much to the building of traditions in our Navy.

ISAAC HULL

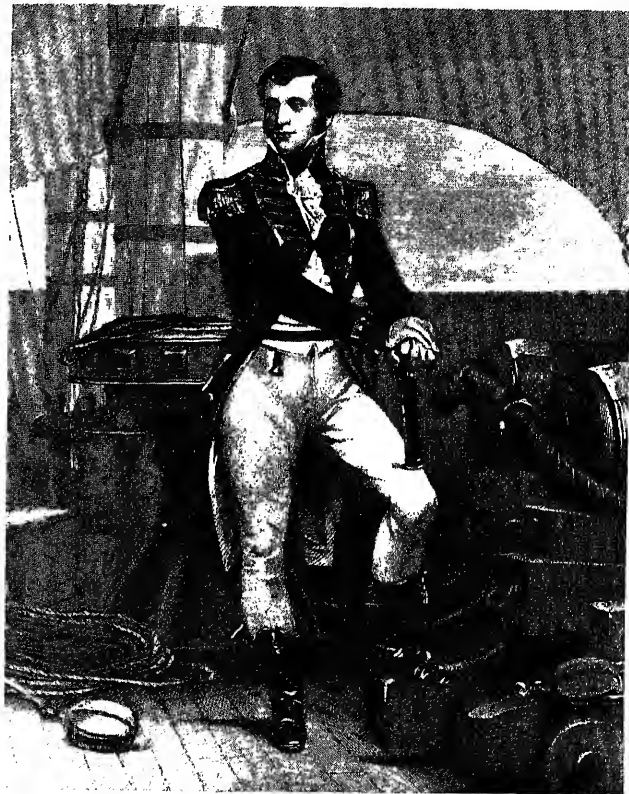
Captain Isaac Hull, commanding the *Constitution* gained first honors when he met the *Guerriere* under Captain Dacres. During the battle, Hull quietly moved among the officers

and men, addressing to them words of confidence and encouragement. "Men, now do your duty." And every man stood firm to his post.

Within 45 minutes the *Guerriere* had been reduced to a wreck—a feat which astonished both sides of the Atlantic. It was in this battle that our most famous and historic ship, the *Constitution*, won her sobriquet "Old Ironsides" as enemy shot bounced harmlessly off her thick wooden hull.

STEPHAN DECATUR

As already pointed out, Decatur (figure 2-6) received his training in Preble's "school" in the



134.9

Figure 2-6.—Praise can be a motivating force. Captain Stephen Decatur substituted praise for oaths and flogging—and his gunners poured 100 shots at long range into the enemy *Macedonian* in the War of 1812.

Mediterranean. Now in command of the *United States*, he faced the *Macedonian*, one of the finest ships of her class in the Royal Navy. Decatur, choosing his position well, decided to fight at long range and gradually wear down his opponent.

Quickly analyzing the battle situation, Decatur saw that the greater range of his guns would enable him to outshoot and cripple the British. He cleverly maneuvered his ship and prevented the enemy from closing in. His gunners fired rapidly and accurately, and more than a hundred shots penetrated the *Macedonian's* hull. Down came her mizzenmast. Both the fore and main topmasts were shot off. After 2 hours of fighting, the battle was over. The victory was a great exhibition of leadership by Decatur, who possessed to an exceptional degree the ability to infuse his own spirit into his men. The spirit he describes as follows: "The enthusiasm of every officer, seaman, and marine on board this ship, on discovering the enemy, their steady conduct in battle, and precision of their fire, could not be surpassed."

Decatur was popular with his men. He deplored oaths and flogging—the customary methods of gaining discipline at that time. He

often addressed his men, explaining the kind of conduct that he expected of them. Decatur won respect not by demanding it, but by deserving it.

OLIVER HAZARD PERRY

This was an era when fighting slogans were coined. And James Lawrence's dying words uttered in the ill-fated *Chesapeake*, "Don't give up the ship!" became the battle cry of the Navy. Oliver Hazard Perry carried them to Lake Erie where he hoisted on his ship (named in honor of Lawrence) a flag upon which was stitched the legend, "Don't give up the ship."

During the Battle of Lake Erie, with four-fifths of the crew dead or wounded, and his ship, the *Lawrence*, crippled, Perry faced defeat. He made a "cliffhanger" passage in an open boat to another ship, the *Niagara*, under the guns of the enemy. Using a surprise maneuver, he sailed the *Niagara* aggressively through the enemy's lines (figure 2-7) and within 15 minutes the battle was won—an exhibition of extraordinary acumen and courage. The Navy will long remember Perry's famous dispatch: "We have met the enemy and they are ours."

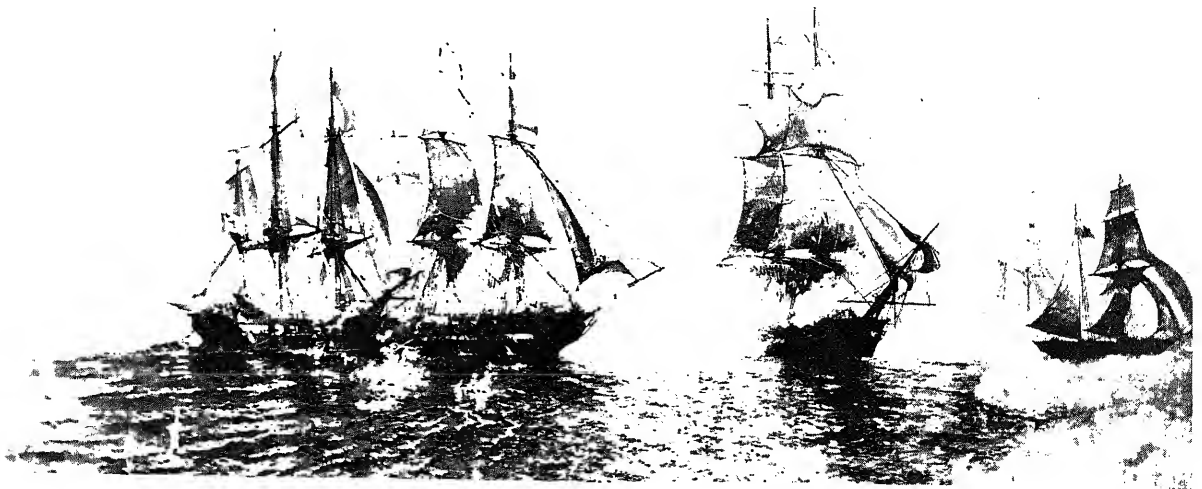


Figure 2-7.—A surprise maneuver turns defeat into victory. Leaving the crippled *Lawrence*, Perry boarded the *Niagara*, sailed through the British lines, and attained victory in 15 minutes.

134.10

Perry really won the Battle of Lake Erie in the months before he faced the fire of the British fleet—won it when he was working night and day to build, equip, and man a squadron stronger than the enemy's. He used sound judgment and foresight in his preparations. The night before the battle he went over his plans of attack repeatedly with his officers until he was convinced that each knew the part he was to play. It was his preparation and forehandedness, as much as his dramatic crossing of the line of fire in an open boat, that place him in the forefront of our tradition-makers.

DR. USHER PARSONS

A hero and tradition-maker, but seldom mentioned in descriptions of the Battle of Lake Erie, was Dr. Usher Parsons, the only surgeon available for duty during the fight.

Dr. Parsons served under Perry on board the *Lawrence*. Since this ship was shallow built and had no protected cockpit, as was customary, the doctor received the wounded on the wardroom floor, which was nearly level with the surface of the water. Here, in this unprotected, crowded spot, Parsons and his assistants carried on their work.

It was hot work and bloody, and at combat's height, when all able men were needed on deck to fight the guns, the doctor carried on single-handed. During the battle five cannon balls crashed through the wardroom, one of them killing two men lying on the operating table. In all, Dr. Parsons amputated six limbs and dressed the wounds of many men before he finally transferred with Perry to the *Niagara*.

Of the 96 men wounded in the battle, only 3 died—a remarkable tribute to the skill of the 25-year-old surgeon. In a letter to the Secretary of the Navy, Perry wrote: "Of Dr. Parsons, surgeon's mate, I cannot say too much." But Dr. Parsons was only one of many doctors who composed naval tradition. During the quasi-war with France and the War of 1812, the names of 24 medical officers were mentioned in the



134.11

Figure 2-8.—The greatest naval victory of the War of 1812 and perhaps the most decisive of all battles fought on land or sea in that conflict was won by Captain Thomas MacDonough, "The hero of Lake Champlain." The action halted a British invasion of New York that stood little chance of defeat at the hands of the American Army.

THOMAS MACDONOUGH

Of perhaps greater importance than Perry's victory was Thomas Macdonough's brilliant triumph over the British fleet on Lake Champlain. As the enemy ships stood in, "young Macdonough, who feared his foes not at all, but his God a great deal, knelt for a moment with his officers on quarterdeck."

Macdonough (figure 2-8) was everywhere during the battle, trying to instill organization and fighting spirit into his crew. His calm determination was remarkably contagious. It is not too much to say that the credit of this

position that imposed upon the British an approach under a raking fire, he won the opening gambit of the battle. Meantime, he was wise enough to hold several tactical tricks in reserve. With these he managed to rally when the enemy thought him beaten.

Macdonough's Champlain victory characterized the American naval effort in the War of 1812. Pitted against the greatest naval power in the world, our miniature Navy fought with monumental valor. In accomplishing much with little, it bequeathed the service another tradition—one expressed by the Navy's slogan in World War II: We must all do all that we can with what we have.

THE CIVIL WAR

The naval history of the Civil War vividly portrays the employment of sea forces against an enemy economically dependent on shipping. The Confederate States were a consolidated land power with the advantage of interior lines, and they possessed many sea and river ports affording access to world commerce which they vitally needed. But war imports were denied them by an effective Union blockade. The spectacular Confederate achievements were accomplished with shoestring resources which were soon expended.

The Union Navy simultaneously assumed three huge strategic tasks, largely amphibious in nature. It attempted to blockade the whole southern coast, to force its way into various southern ports, and to cooperate with the Army on the Mississippi front. Union naval forces were also called upon to protect northern shipping from enemy raiders. A graphic illustration of the Navy's ability to adjust itself to new conditions may be found in the way in which, both afloat and ashore, it met the complex demands of the Civil War. To complicate matters, naval warfare was at that time in a transitional period, a veritable naval revolution. Although steam had been introduced some time earlier, armor was just coming into use. In the field of ordnance, rifled guns and shell ammunition demanded new methods of fire control.

Produced by this rapid transition was one of the oddest assortments of warships ever

assembled. The Union fleet contained old wooden frigates like the *Constitution*, converted East River ferryboats, scores of armed steamers and a number of experimental ironclads. The South used armored vessels, steam commerce raiders, electrical mines, and even primitive submarines.

Under the superior leadership of Secretary of Navy Gideon Welles, and his able assistant, Gustavus V. Fox, who was first to hold the newly created office of Assistant Secretary of the Navy, the naval establishment rose magnificently to the occasion. The Nation's scientists and inventors contributed many innovations, and by war's end the U.S. Navy was technically the equal of any on the sea.

The most famous naval battle of the war was significant as a preview of things to come. This was the battle between the *USS Monitor* and *CSS Virginia* (ex-*USS Merrimac*). It has been said that probably no naval conflict in the history of the world attracted as much attention as did this one. Fighting the first action of its kind in history, the ironclads conclusively demonstrated the superiority of metal over wood. The futility of the long and furious cannonade, contrasted with the outstanding victories of the *Virginia* over the unarmored ships *Cumberland* and *Congress*, on the previous day, made the battle a significant step in the development of the warship.

DAVID G. FARRAGUT

The outstanding battle leader of the Civil War was our first admiral, David G. Farragut (1801-70).

Like many others in the early days of the Navy, Farragut (figure 2-9) entered the service as a lad. He was a midshipman before he was 10 years old and had command of a ship (for a brief time) at the age of 12. By the time he reached his majority, he was experienced at shiphandling and leadership.

When the Civil War broke out in 1861, Farragut, then aged 60, had already served 49 years in the Navy and at this time was awaiting orders in Norfolk where he and his wife had made their home for almost 17 years. Southern



134.12

Figure 2-9.—The statement of David G. Farragut, tactician and strategist, that “the best defense is a well-directed fire from your own guns,” became a Navy axiom.

friends, urging him to espouse the Confederate cause, were left in no doubt as to his sympathies and convictions. “I would see every man of you damned before I would raise my hand against the flag.” With this declaration of allegiance, he hurried North to serve with the United States Navy.

Farragut’s New Orleans campaign was one of the most brilliant of the war. Where logistics was concerned, Farragut displayed an impressive knowledge of the art of moving men and supplies. He is credited, too, with being the first American officer who fully comprehended the strategic deployment of a fleet and coordinated the operations of his vessels accordingly.

At Mobile Bay occurred the incident for which Farragut is best remembered. The Admiral was stationed on the *Hartford*, and during the critical phase of the battle, mines (then called torpedoes) were reported ahead. Farragut knew that the monitor *Tecumseh*, with almost all hands, had just gone down in that area. His response would echo through history as a slogan for driving leadership. “Damn the torpedoes! Full speed ahead!” As Farragut suspected, most of the enemy’s underwater weapons had deteriorated from long submersion. And the fleet got through.

The engagement affords another example of Farragut’s genius for planning. He had spent 2 days making sure that his ships were prepared for the run. Heavy anchor cables were fastened alongside the wooden sides to serve as “chain armor” for the engines and boilers. The ships were daubed with mud (primitive camouflage), and water buckets were readied for firefighting. As a tactician and strategist Farragut was unexcelled by any contemporary. And his statement “the best protection against the enemy’s fire is a well-directed fire from your own guns” became a Navy axiom. But Farragut bequeathed the service something more than valiant slogans. He left us a reminder that major plans are composed of minor details. And even so minute a detail as water buckets received Farragut’s attention.

DAVID D. PORTER

David D. Porter (figure 2-10), son of the famous David Porter who commanded the raider *Essex* during the War of 1812, saw more continuous fighting than any American naval officer of note during the Civil War—much of it on the Mississippi River. Competent, aggressive, and resourceful, Porter rose from the rank of lieutenant at the beginning of the conflict to that of rear admiral at its close. It was through Porter’s urging that Farragut was chosen to lead the New Orleans expedition. Porter himself devised and led the famous mortar flotilla that did much to crack the Delta defenses.

It is not surprising that juniors were eager to serve under the dynamic Porter. Besides being a

fine seaman and able administrator, he possessed many personal traits that contributed to the spectacular success of his naval career. He was impulsive, frank, and honest. He was endowed with a creative imagination. He abhorred sham, and valued performance above protocol. His sense of humor was unquenchable; situations never became so desperate that he could not find an opportunity for a jest. He was able to estimate accurately the potentialities of his subordinates and never failed to praise them when they lived up to his expectations. Above all, he was unafraid of innovation. Not satisfied with "good enough," he was open-minded toward anything which might be better. His

progressive outlook kept him a step ahead of his contemporaries.

RAPHAEL SEMMES

A miniature of this distinguished Confederate naval leader conveys an impression best described by the term "knightly." Few warriors of this stamp ever existed outside the pages of fiction, but Semmes (figure 2-11) lived the part in the best Paul Jones' tradition. Captaining raiders *Sumter* and *Alabama*, he left a record that reads like a saga of valor and derring-do. Like Jones he refused to be defeated by adversity. Deprived of *Sumter* at Gibraltar, he wrote, "I could sweep the whole Mediterranean in from 15 to 20 days if I had the means of locomotion." Eventually he acquired the means, and his raiding cruiser *Alabama* struck the North harder blows than any other Confederate vessel.



134.128

Figure 2-10.—Rear Admiral David D. Porter was the second admiral in the U.S. Navy, preceded only by Farragut. Porter commanded the Mississippi River Flotilla in its campaign down the big waterway that climaxed at Vicksburg. Later he inflicted a brilliant and crushing defeat on the Confederates at Fort Fisher in 1865.



134.129

Figure 2-11.—Raphael Semmes, while skipper of the Confederate raider *Alabama*, ruthlessly burned ship after ship, virtually driving merchantmen flying the Stars and Stripes off the seas.

TRADITION MAKERS IN PEACETIME

In peacetime many officers have served their nation and their Navy with distinction. They, too, have added breadth and depth to the great current of tradition.

MATTHEW FONTAINE MAURY

Chief among these peacetime contributors was Matthew Fontaine Maury (figure 2-12). In the field of science no officer in the 19th century rendered a service equal to that of the "Pathfinder of the Seas."

Starting as a midshipman in 1825, Maury served a number of years at sea. During this period he was distressed to learn that practically no helpful information was available to the mariner on such matters as winds, currents, and best courses. In 1839 Maury sustained an injury that rendered him unfit for further sea duty. Refusing to bow to misfortune, he turned his talents to science.

When he was in his mid-thirties, the Navy Department appointed him Superintendent of the Depot of Charts and Instruments in Washington. He soon conceived the unique idea of collating available data found in the numberless old log books stored in the Navy Department. These he supplemented with observations made several times daily by ships in our Navy as well as by American and foreign merchant ships. Soon more than 1000 shipmasters in every ocean were making day and night observations according to a uniform plan. The temperature of air and water, direction of wind, set of currents, and height of barometer were recorded. Navigators were instructed to cast overboard at stated periods bottles containing a record of ship's latitude, longitude, and date. They were requested to pick up similar bottles wherever found, noting the exact position and time, and to forward these data to Washington. On the basis of this information, Maury drew important conclusions about winds and currents, paths of storms, quickest routes between great shipping ports, and other fundamentals of modern navigation. To this day, Maury's pilot charts, brought up to date, are

indispensable in making ocean travel safe and expeditious. His studies of the little-known Gulf Stream, then termed the "river in the ocean," provided science with much valuable data on that phenomenon.

The Navy also profited by his interests in other areas. He outlined the original system of naval education adopted by the Naval Academy. When the Atlantic cable was laid, Cyrus W. Field said, "Maury furnished the brains, England gave the money, and I did the work." Geography, mineralogy, geology, astronomy, occupied Maury's interest. "Navies are not all for war," he wrote. "Peace has its conquests, science its glories; and no Navy can boast of brighter chaplets than those which have gathered in the fields of geographical exploration and physical research.

Maury's contribution gave impetus and direction to the Navy's collateral work during times of peace. It has been followed by



134.13

Figure 2-12.—Maury learned secrets of tides, reefs, currents, and storms, and in his charts made the information available to navigators.

continuous effort in exploration, oceanography, astronomy, and other fields. Commander Peary, for example, discovered the North Pole. Admiral Byrd, who flew over both the North and South Poles, was the first person to fly over either one of them.

Today's Oceanographic Office has continued with navigational and astronomical studies, and the distribution of its publications furnishes

evidence of the Navy's continuing interest in the program pioneered by Matthew Fontaine Maury.

JOHN A. DAHLGREN

Another officer whose greatest contribution was made in peacetime (in the main before the Civil War) was John A. Dahlgren (1809-70), often called the father of modern ordnance and gunnery (figure 2-13).

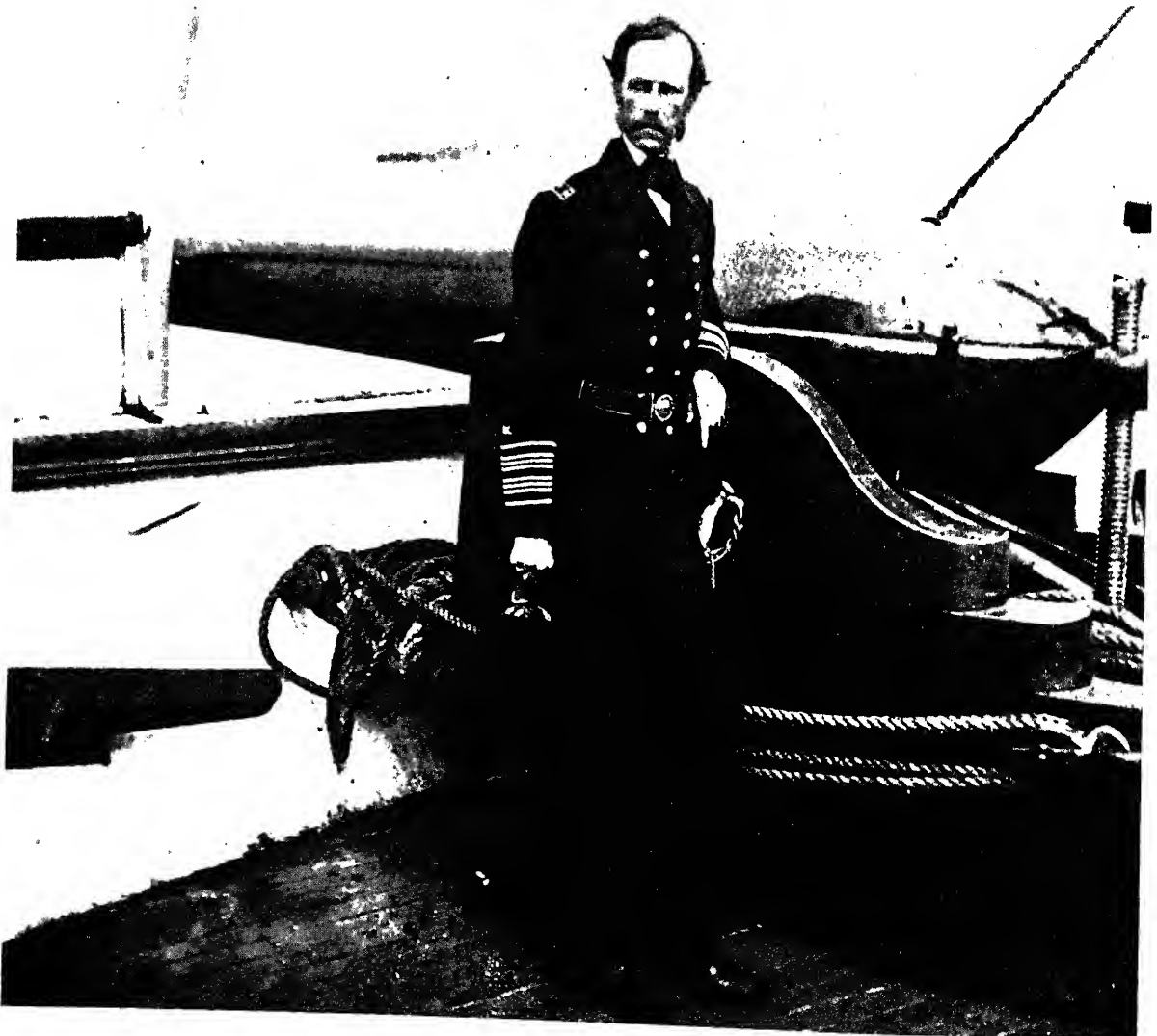


Figure 2-13.—Rear Admiral John A. Dahlgren, standing next to one of the guns he designed, was leading pioneer in modern naval ordnance and gunnery. The Dahlgren Gun was the forerunner of today's modern naval gun.

134.14

After gaining sea experience, Dahlgren entered the Navy in 1826 as a midshipman. He was plagued with ill health, particularly in his early years (for a time he was threatened with total blindness). Nevertheless, he wrote many books and articles and contributed numerous inventions to the field of ordnance. Dahlgren's naval duties before the Civil War included, beside his sea duty, heading the Bureau of Ordnance in Washington, instructing in gunnery at Annapolis, and commanding the Washington Navy Yard. He was successful in renovating naval ordnance and established a regular system of ordnance workshops, gun-carriage shops, a cannon foundry, and an experimental laboratory.

Against strong protest from the service, he persisted in demanding improved weapons. He designed a new, reinforced gun-breech, advocated the first real sights, and urged the rifling of cannon. Indirectly, he was partly responsible for the construction of ironclads. The Dahlgren gun was the most widely used type in the Union fleet during the Civil War. This gun was a major technological contribution to the Union naval victory in the Civil War. An account in a London paper of the *Kearsarge-Alabama* duel said that it was a "contest for superiority between the ordnance of Europe and America" in which the Dahlgren guns of the *Kearsarge* showed marked superiority.

A scientist and an inventor, Dahlgren devoted himself to blueprints instead of charts. His career was not a romantic story, nor was he a popular hero, but his enthusiasm and his love for the Navy have rarely been surpassed. He, too, created tradition. And the Navy would not forget his admonition, "The officer should wear his uniform, as the judge his ermine, without a stain." This observation could be applied to few more fittingly than to Dahlgren himself.

STEPHEN B. LUCE

Stephen B. Luce (figure 2-14), one of the Navy's outstanding educators, was born in 1827 and entered the service as a midshipman at the age of 14. During most of the Civil War he

served with the Atlantic coast blockaders and, for a time, commanded a monitor at the siege of Charleston, South Carolina. Luce was deeply interested in training of personnel, and in 1862, while on a tour of duty at the Naval Academy, he prepared one of the best-known seamanship textbooks.

After the war, Luce commanded the Naval Academy Practice Squadron for 5 years, and in



134.130

Figure 2-14.—One of the foremost seamen of his day, Rear Admiral Luce was the driving influence behind the institution of the U.S. Naval War College in 1884 and the use of Fleet exercises as battle practice for our expanding naval armada.

1875 he organized the Navy's apprentice training system. Its purpose was to train American boys to take their places in the fleet as seamen and petty officers. Throughout his life Luce insisted that the Navy should be an educational institution for all hands—with all hands working to get ahead and with advancement always open to trained personnel.

Captain Luce was appointed Inspector of Training Ships from 1878 to 1881, and as Commodore, he commanded the United States Training Squadron from 1881 to 1884, hauling down the flag when he was transferred to command the North Atlantic Squadron. By this time the training system had been firmly established, and its later development into the Naval Training Stations at Newport, Great Lakes, and elsewhere, followed directly from Luce's pioneer work.

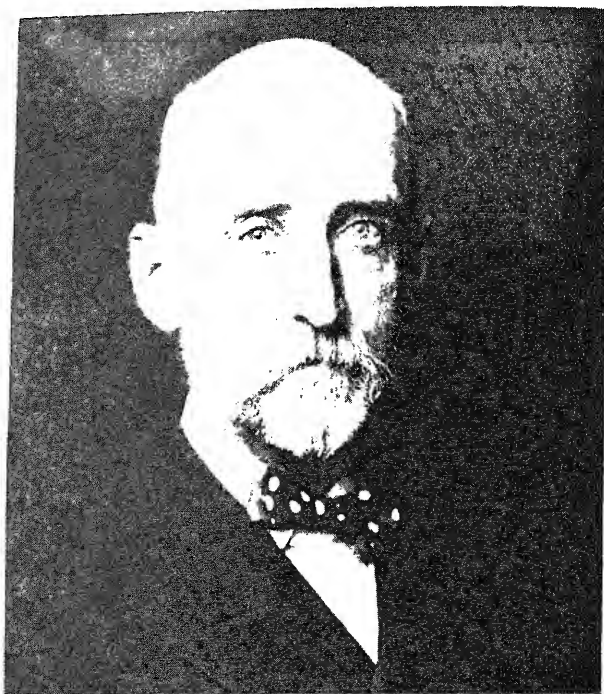
Luce took the lead in urging the establishment of a war college where senior officers might study the art of war—strategy and tactics. He once said that good gunners, good engineers, and good communicators are found abundantly in every navy in time of war, but that good admirals are always too few in number.

Finally, in 1884, Luce was successful in having the Naval War College established at Newport, R.I. The primary function of this institution was to train senior officers to think in terms of up-to-date fleet evolutions; to study and master broad strategic concepts; to prepare themselves for the handling of modern fleets in battle. It was the first institution of its kind in the world.

During his professional life and until he died in 1917 at the age of 90, Admiral Luce fought tirelessly for improvement in ship and gun design; for the introduction of efficient methods of administration into the Navy Department. His work contributed immeasurably to bracing the morale of the service in the letdown period which followed the Civil War. Today's naval training program stems directly from the efforts of this farsighted officer.

ALFRED T. MAHAN

Alfred T. Mahan is a notable example of a naval officer who gained worldwide fame but



134.15

Figure 2-15.—A philosopher of naval strategy, Mahan's researches in military history proves that the nation controlling the oceans is the nation that maintains its supremacy in war or peace.

not in battle; it was achieved in his regular line of duty in the pursuit of his profession in peace. He occupies a supreme position in the Navy as a writer. His particular theme is seapower.

Born at West Point in 1840, Mahan (figure 2-15) attended Columbia University for 2 years, and in 1856 he was admitted to the second year at the Naval Academy at Annapolis. Graduating second in his class, he served at sea during the Civil War, and this duty was followed by routine and uneventful service until 1885. At the request of Stephen B. Luce, his former commanding officer, he was called to duty as a lecturer at the Naval War College at Newport, R.I.

Mahan entered his new work with consuming zeal. He felt that the War College should train officers to go beyond the mere mechanics of their profession; that it should

seek through historical studies to develop the rarer and more intangible qualities of "the artist in war . . . intuition, sagacity, judgment, daring, inspiration—which place great captains among creators, and war itself among the fine arts."

In 1890 he published the first of his many great works. Titled "*The Influence of Seapower upon History, 1660-1783*," it was based upon his lectures on naval history and seapower. Mahan's volume stressed the theme that victory for a nation at war ordinarily depends upon control of the sea. It was one of the most influential books ever written and was received with great enthusiasm throughout the entire world. In Germany the Kaiser wrote, "I am just now not reading but devouring Captain Mahan's book; and I am trying to learn it by heart. It is a first-class work and classical in all points. It is on board all my ships and constantly quoted by my captains and officers."

Mahan's writings were promptly translated by the Japanese and it is said that Japanese midshipmen read him in the original to learn English. His work was studied also by contemporary Secretaries of the Navy, by the Congress, and by President Theodore Roosevelt.

Mahan's work marked the final transition from sail to steam, not only in naval construction but in naval thinking. He believed the best time to stop an attack was before it arrived. A shore-hugging navy, he foresaw, could no longer be considered a worthy defense. As a consequence, the buildup of our Navy, commenced under President Cleveland, was continued under President Theodore Roosevelt. By 1898, the Navy was in a position to assure the United States a role as a world power.

SPANISH-AMERICAN WAR

The Spanish-American War in 1898 resulted from a long series of incidents arising in part from unsettled conditions in Spain's Caribbean possessions. It was evident from the first that the war would be primarily naval, and would be decided in favor of the nation able to establish control of the western Atlantic. While the naval strength of the two countries was about equal

on paper, Spain's ships were poorly equipped, her personnel lacked training, and her officers displayed incredibly incompetent leadership.

Theodore Roosevelt, Assistant Secretary of the Navy in 1897, and an enthusiastic disciple of Mahan, was influential in getting the Navy into shape for the war. In the overwhelming victory won by the United States, the Navy played a notable part.

GEORGE DEWEY

Perhaps the outstanding exploit of the Spanish-American War was Commodore George Dewey's seizure of Manila Bay. The Spanish admiral knew that Dewey's fleet was somewhere in the vicinity. However, he did not suspect that the American would have the audacity to steam in during the night, with forts on either side and the Spanish squadron ready to receive him (figure 2-16).

While laying his plans, Dewey said he tried to figure out what Farragut would have done when so confronted, for Farragut had been the inspiration of his life. The influence of a great leader is borne out in Dewey's statement: "Valuable as the training of Annapolis was, it was poor schooling beside that of serving under Farragut in time of war." Dewey's dramatic decision to force Manila Bay was inspired by his admiration for Farragut.

As it eventuated, this unexpected blow, so timed, was half the victory. "We shall enter Manila Bay tonight," Dewey informed his subordinates, "and you will follow the motions and movements of the flagship, which will lead."

At 0540, when the range had been reduced to 2-1/2 miles, Dewey, standing on the bridge of the *Olympia*, quietly gave the order to the commanding officer of his flagship, "You may fire when you are ready, Gridley." By noon, every enemy ship was sunk, burned, or abandoned. While it was true that the enemy defense was weak, this was nonetheless a signal victory. In one morning, Dewey eliminated Spanish naval strength in the Pacific without the loss of one American life.

Dewey stressed preparedness. Before leaving the United States he had obtained all the

information available on the Spanish fleet; he secured charts and other data on the Philippines and made a detailed study of international law. Before the battle he discussed with his officers every detail of tactics and strategy. Every ship captain knew each detail of how and when to act.

"It was the ceaseless routine of hard work and preparation in time of peace," wrote Dewey, "that won Manila and Santiago."

NAVY ENTERS THE 20TH CENTURY

From the Spanish-American War the United States emerged with the majority of her present-day insular possessions: Hawaii (annexed before end of war), Puerto Rico, Guam, Midway, and Wake. In addition, we had gained control of the Philippines and assumed a protectorate over Cuba.

Immediately following every war there comes the cry to do away with armaments. Beginning with the Revolution it became the rule, upon the termination of hostilities, to

decrease the naval establishment drastically both in men and ships. The Spanish-American War stands out as the conspicuous exception. Instead of drifting into a decline, the new Navy sailed forward. Two reasons for this continued expansion were the obvious need for a large Navy to protect our new possessions, and the enthusiasm of President Theodore Roosevelt for the Navy—an enthusiasm entertained especially since his holding of the office of Assistant Secretary of the Navy. A big navy gave Roosevelt the opportunity of carrying out his policy of "speaking softly and carrying a big stick."

Programs of the various navies of the world between 1900 and the beginning of World War I were based primarily on the development of the capital ship theory and the development of the submarine and airplane. Although the ideas of these innovations were the result of American genius, the Navy was not always prompt in recognizing their potentialities.

WILLIAM S. SIMS

Admiral William S. Sims was a driver in the naval service both in peace and in war. Like

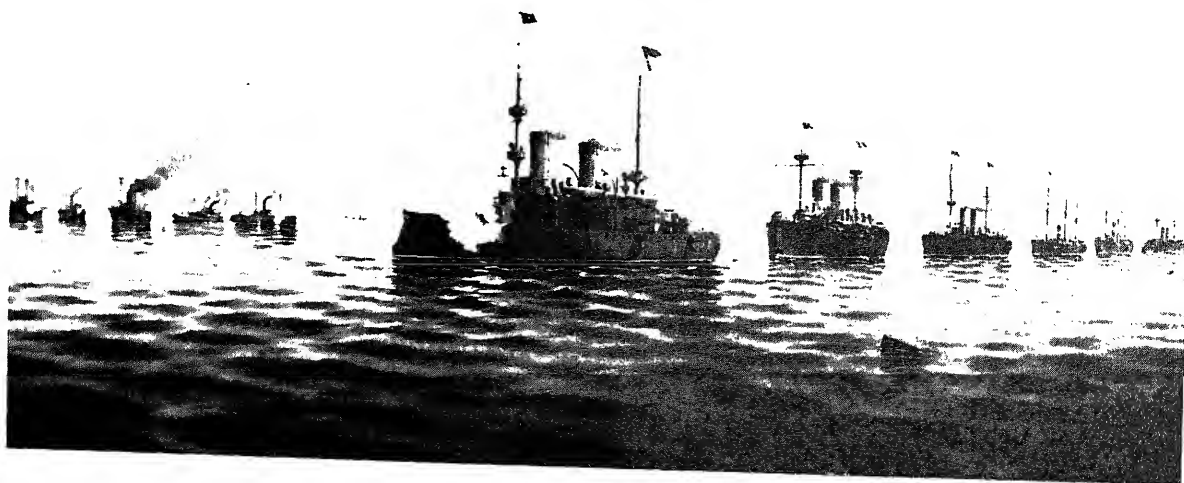


Figure 2-16.—Commodore George Dewey and his squadron sailed past the shore batteries of Manila Bay on 1 May 1898 to smash the Spanish Pacific squadron of Rear Admiral Montojo, opening the way for the American occupation of the Philippines.

134.131



134.16

Figure 2-17.—To improve gunnery, Sims developed a keen competitive spirit in the Fleet. He raised the accuracy of Fleet gunnery to near-perfection during the years that he served as Inspector of Target Practice.

Maury, Dahlgren, Luce, and Mahan, Sims (figure 2-17) encountered opposition in his progressive ideas from the Navy itself. It is not surprising that many of his superiors, comfortably settled in conventional routine, regarded him as an intolerable nuisance. He was always seeing something that needed correction and he was not afraid to speak up with constructive criticism.

At the turn of the century our deplorable showing at target practice worried Lieutenant Sims. Analysis revealed that at Santiago 120 hits were scored and 9000 projectiles fired. The rationalization, "Well, we annihilated them at Manila and Santiago, didn't we?" was not convincing to Lieutenant Sims. He agreed with

Mahan's wise comment that "We cannot expect ever again to have an enemy so entirely inept as Spain showed herself to be." The climax came in the Far East, where Sims was serving as fleet intelligence officer of the Asiatic Squadron. There the fleet's target practice was so indifferent that he became convinced the gunnery of the United States Navy could—and should—be improved. So effective were his suggestions that he was ordered home in 1903 and installed as inspector of target practice. Pitching in to rectify a deplorable situation, Sims revolutionized fleet gunnery.

Improved methods of rangefinding and spotting were adopted. A keen competitive spirit in the gun crews was developed. Gunnery prizes were offered and records for all calibers were broken every year. In 1903 the fleet average for all guns was approximately 40%; in 1906 it was almost 78%. When Sims left the Target Practice Office in 1909, the United States Navy led the world in gunnery.

By publicizing an urgent need for modification in ship construction, Sims was instrumental in bringing about other important changes.

He was admired and supported by many of the fleet's ablest officers, among them Commander (later Admiral) Bradley A. Fiske, one of the Navy's foremost scientists and inventors. Back in the 1890's Fiske invented the telescopic sight, the stadimeter for rangefinding and station keeping, the electric rangefinder, and the turret rangefinder. In 1912 he spurred the development of the torpedo-carrying airplane. An innovator, Fiske worked well in harness with Sims.

Selected to command United States naval forces in European waters during World War I, Sims successfully coordinated American and British naval operations, and played a major role in the development of the convoy system, an offensive-defensive system against the German submarine threat. Like Farragut, Dewey, and other great leaders, he had the capacity for securing the enthusiastic and loyal support of his subordinates.

WORLD WAR I

Several days after our declaration of war against Germany in April 1917, Rear Admiral Sims, who had just come from Newport where he had served as President of the Naval War College, arrived in London to confer with British First Sea Lord, Admiral Jellicoe. Explaining the status of the submarine war, Jellicoe revealed that available Allied shipping had been depleted by one-fourth, and that losses were mounting at an appalling rate. April losses alone threatened to reach the unprecedented figure of 900,000 tons. Sims realized that at this rate England, with only a month's grain supply on hand, must starve or surrender within a few weeks time. Germany was winning the war.

With Germany building U-boats at the rate of three a week, it was obvious that the submarine menace had to be drastically dispelled if the Allies were to survive. Sims appealed to the Navy Department for immediate dispatch of

all available destroyers and other antisubmarine craft, auxiliaries, and merchantmen. (See figure 2-18.) Within a month after our entry into the war, the first American naval forces began to arrive in Britain ready for duty.

From a naval point of view, World War I was a conflict of two blockades—the Allies maintaining a long-distance blockade of German ports, and the Germans, with the submarine, trying to blockade British and French ports by attacking Allied shipping. The unrestricted sinking of neutral American merchant ships was one reason for our entry into the war. And the cruiser, the destroyer, and the newly constructed sub-chaser performed yeoman service in this campaign against German submarines.

The Allied victory resulted in part from the Sims-inspired convoy system employed in transporting about 2 million American fighting men to France. Navy convoys also transported



Figure 2-18.—Admirals Sims and Rodman watch the parade of might that marked the end of the Kaiser's hope for world domination.

the munitions and supplies needed to sustain Pershing's armies and the Allies.

THE CASSIN INCIDENT

In October 1917, the destroyer *Cassin* was patrolling off the Irish coast. Gunner's Mate O. K. Ingram suddenly sighted a German torpedo racing toward the stern of the *Cassin*. He realized that if the "fish" struck the vessel where the depth charges were stowed, the ship would be blown up. Instead of saving himself, he deliberately rushed aft to throw the charges overboard. The torpedo found its mark—and the explosion killed Ingram and temporarily disabled the ship. But this bluejacket's sacrifice saved his ship and the lives of the officers and men on board. The destroyer *Ingram* commemorates his name.

CHARLES L. AUSBURNE

Another incident that occurred in World War I contributed to our store of memorable naval traditions. The transport *Antilles*, bound for the United States from Europe in October 1917, was sunk by torpedo attack. Radio Electrician Ausburne at the wireless station frantically sent out distress signals. The ship was sinking rapidly, but Ausburne, disregarding his own safety, stuck to his post to the end, vainly attempting to obtain help. Ausburne's sacrifice, like Ingram's, was in keeping with the highest traditions of naval service. The heroism of such men reminds us that the bluejackets we command are worthy of the best in leadership.

WORLD WAR II

Deeds of yesterday furnish the inspiration for today. In warfare the immediate stakes are death and life, and the long-term stakes are the survival of a way of life and of a civilization. Men are forced for a period to show their supreme best. During such crises they must work beyond their strength; hit harder and faster than their opponents; make split-second—and correct—decisions; and risk their own lives to let

others live. Their heroism lives on in traditions that become the motivating force of future generations—traditions of courage, hard work, lightning and shrewd judgment, and generous self-sacrifice.

CHESTER WILLIAM NIMITZ

When he hoisted his flag as Commander in Chief, U.S. Pacific Fleet on 31 December 1941 aboard the submarine *Grayling* in a harbor littered with the wreckage of American warships, Admiral Nimitz (figure 2-19) was faced with one of the most difficult tasks ever presented a man. The Japanese on 7 December had successfully perpetrated one of the most damaging air raids in history. Of eight



134.132

Figure 2-19.—By his brilliant leadership and skill as a strategist, Admiral Nimitz moved his forces in the Pacific from a series of peripheral engagements to strategic encirclement of the enemy, cutting the enemy's lines of supply and isolating his land forces.

battleships in Pearl Harbor, *Arizona* was wrecked, *Oklahoma* capsized, and six were damaged, of which three were resting on the bottom. All told, 19 ships were hit. The Japanese had practically eliminated the Navy's striking air power there, knocking out 150 of 202 planes. The Navy and Marine Corps suffered 2117 dead plus 779 wounded.

Despite a tragic shortage of ships, aircraft, and supplies, Admiral Nimitz organized his remaining forces and carried on defensive warfare, trying to delay the enemy's advance until such time as we could muster sufficient strength to put up any real resistance. As rapidly as ships, personnel, and material became available, however, he shifted to the offense. By his brilliant leadership and outstanding skill as a strategist, he enabled units under his command to defeat the enemy in the Coral Sea, off Midway, and in the Solomons, as well as to conduct offensive raids on Japanese-held territory such as the Gilbert and Marshall Islands. The battle of Midway was the first decisive defeat suffered by the Japanese Navy in 350 years. It put an end to the long period of Japanese offensive action, and restored the balance of naval power in the Pacific.

Gradually, Admiral Nimitz's forces fought their way across the Pacific to the Japanese mainland. Initiating the final phase in the battle for victory, he attacked the Marianas and inflicted a decisive defeat in the battle of the Philippine Sea, and captured Guam and Tinian. Continuing onward, his forces isolated enemy-held bastions (the strategy of island-hopping) in the Central and Eastern Carolines. An engagement with Japanese task forces then resulted in a historic victory in the Battle of Leyte Gulf. His long-range strategy was culminated by successful amphibious assaults on, among other landings, Iwo Jima and Okinawa, the outstanding operations of this type during the last months of the war.

Finally, Nimitz placed representative forces of the U.S. Navy in the harbor of Tokyo for the capitulation of the Japanese Imperial Government. The formal surrender document was signed on 2 September 1945 aboard the battleship *Missouri* in Tokyo Bay. General of the

Army Douglas MacArthur signed as Supreme Commander for Allied Powers; Fleet Admiral Nimitz signed as representative for the United States.

On 11 December 1944, Congress authorized the establishment of the grades of Fleet Admiral and General of the Army (the highest grades ever), with the proviso that four Navy and four Army officers could be elevated to that 5-star grade. The President immediately recommended Admirals Nimitz, William D. Leahy (Chief of Staff to the President), and Ernest J. King (Commander in Chief/CNO, U.S. Fleet)¹ for the grade. Congress approved the recommendations, and Nimitz took his oath of office on 19 December. (Admiral Halsey, the fourth Navy recipient of the new grade, received his promotion the following year.)

Following the surrender of Japan, Fleet Admiral Nimitz took over the top naval post, relieving Fleet Admiral King as Chief of Naval Operations on 15 December 1945.

Nimitz received some 15 decorations and awards from foreign governments. After his release from active duty, he served for 8 years as Regent for the University of California, and received honorary degrees from 19 universities and colleges, including Notre Dame, Columbia, Northwestern, Syracuse, Tulane, Harvard, and Princeton.

WILLIAM FREDERICK HALSEY, JR.

Admiral Nimitz was fortunate to have under his command many extremely resourceful, intelligent, dedicated, and courageous officers. There are too many to be listed here, but anyone familiar with operations in the Pacific during World War II will have no difficulty

¹ An interesting sidelight to his title was that King thought the original abbreviation—CINCUS—was hardly appropriate in view of the successful raid on Pearl Harbor. Consequently, he changed it on 12 March 1942 to COMINCH. During World War II, he also was CNO.

recalling the feats of such commanders as Raymond A. Spruance, Thomas C. Kinkaid, Marc A. Mitscher, John S. McCain, and R. K. Turner, to name a few. Probably the most famous sea fighter of the war, however, was Admiral William F. "Bill" Halsey (figure 2-20). (Although reporters tagged him with the nickname "Bull," Halsey disliked it as seeming flamboyant.)

During the attack on Pearl Harbor, Halsey was about 200 miles at sea, returning to Pearl in his flagship *Enterprise* from Wake Island where he had delivered Marine Fighter Squadron 221. He took no part in the action except to launch aircraft in a fruitless search for the enemy.

Halsey's actions were characteristically audacious and brilliantly planned, exemplifying his slogan to "Hit hard, hit fast, hit often!" As an example of his determination to succeed, he was designated a Naval Aviator at the age of 52, a prerequisite to being assigned as captain of an aircraft carrier.

Early in 1942, Admiral Nimitz chose Halsey to conduct the first offensive raid in the Central Pacific. Halsey's force of 2 carriers, 5 cruisers, and 10 destroyers made a bold foray beginning on 1 February against the Japanese-held Gilbert and Marshall Islands, bombing and bombarding enemy bases on nine separate islands. During the action, the heavy cruiser *Chester* took one bomb hit; the flagship *Enterprise* was grazed on the flight deck by a suicide pilot. No other ships were damaged during the entire operation. Among other benefits, the raid reestablished offensive spirit within the Navy, and answered a question being asked at home—"Where is the Navy?"

Within 4 months of the "Day of Infamy," Halsey's forces conducted a unique and dangerous carrier operation by transporting 16 B-25 Army bombers across an ocean and launching them off enemy shores. The squadron of planes, led by Lieutenant Colonel James Doolittle, took off from the *Hornet* while 650 miles from the Japanese mainland for the initial bombing raid on Tokyo. Whatever the damage inflicted by the raid, the attack was a shot in the arm for American morale, which at that time was at a very low ebb.



134.133

Figure 2-20.—Admiral Halsey was an exceptional commander. Although he had a flair for doing the spectacular in a dashing way, his valor and audacity were tempered by tactical discretion. Admiral Nimitz, then CINCPAC, once said of him, "He . . . can calculate to a cat's whisker the risk involved."

Halsey's flagship, the *Enterprise*, was the first carrier awarded a Presidential Unit Citation in World War II. It was presented for consistently outstanding performance and distinguished achievements during repeated action against Japanese forces. The *Enterprise* under Halsey's leadership, participated in nearly every major carrier engagement in the first year of the war. Exclusive of the damage and destruction of hostile shore installations throughout the battle area, she sank or damaged 35 enemy ships and shot down 185 aircraft. She was reported sunk by the Japanese so many times she became known as "the galloping ghost of the Oahu coast."

On 18 October 1942, Halsey was appointed Commander South Pacific Force and South

Pacific Area. Starting with the decisive American victory in November at Guadalcanal, which stopped the Japanese advance in the South Pacific (although sporadic action on or near Guadalcanal continued into the following February), Halsey conducted a brilliantly planned and consistently sustained offensive through December 1943, driving the enemy steadily northward, and occupying strategic positions through the Solomons, thereby securing the South Pacific area.

After Halsey lead his forces to victory at Guadalcanal, President Roosevelt nominated him for the unheard-of fourth star (it was unheard of to have more than four full admirals on active duty in the Navy, and we already had them—King, Nimitz, Stark, and Ingersoll). A grateful Congress approved the nomination anyhow.

In June 1944, Halsey assumed command of the Third Fleet. Beginning in August, his forces left a trail of enemy ruin and destruction from the Palaus (a small group of islands north of New Guinea) and the South China Sea up through the Philippines, Formosa, and Okinawa, inflicting greater loss on the Japanese Navy than had ever before been suffered by any fleet. In a magnificent sweep into enemy waters between August 1944 and January 1945, the Third Fleet destroyed 4370 enemy aircraft and sank 82 combatant ships and 327 auxiliaries against a loss in combat of 449 aircraft and the light cruiser *Princeton*.

After the Okinawa campaign, Halsey headed for Tokyo to conduct pre-invasion operations. His fast carrier task force comprised the greatest mass of seapower ever assembled (three task groups, each consisting of five carriers and a battleship-cruiser-destroyer screen). In operations conducted with military precision and characteristic aggressiveness, ships and planes of Task Force 38 blasted every industry and resource which enabled Japan to make war, and knocked out remnants of the once mighty Japanese fleet hiding in camouflaged nets throughout the length of the Honshu Island. When the "Cease fire" order was flashed on 15 August, Halsey's forces (including units of the British Pacific Fleet that joined him in July,

with Halsey in overall command) had destroyed or damaged nearly 3000 aircraft and sunk or disabled 1650 combatant and merchant ships.

In recognition of his exceptional war record, Admiral Halsey was nominated for the grade of fleet admiral in November 1945, his nomination was confirmed by the Senate, and he took the oath as fleet admiral on 11 December 1945, becoming the fourth, and last, officer to hold that grade.

After his return to the United States in October 1945, Halsey made a 6-week trip through Central and South America, serving as a good-will ambassador. He was given numerous awards in the form of parades, reviews, gifts, and military decorations.

At his own request, he was transferred to the Retired List of the Navy on 1 March 1947.

SEAMAN JOHNNIE HUTCHINS

In 1943 Seaman Johnnie Hutchins took his place among the tradition-makers of the United States Navy. At that time the LST 473, carrying men, tanks, and supplies, was part of a landing force that was heading for a Japanese position on New Guinea. Stiff opposition was being met, and as the ship advanced, shells were dropping in the water close aboard. Suddenly a Jap torpedo plane dived low out of the sky and launched its torpedo directly at the LST. In the pilothouse the steersman saw the torpedo coming, as did Seaman Hutchins who stood at his battle station nearby. Before the steersman could swing the ship out of the torpedo's path, he was killed by a bomb that hit the pilothouse. Although Hutchins was fatally wounded, he summoned enough strength to stagger to the wheel and turn the ship clear of the torpedo. The ship was saved, but Hutchins died a short time later. In the face of death this man's last thought was not of himself but of others.

COMMANDER HOWARD W. GILMORE

The unrelaxed vigilance, skill, and daring of the submarine service furnished many tradition-makers in World War II. The story of Commander Howard W. Gilmore is classic.

In command of the submarine *Growler* in the Southwest Pacific, he had just sunk one Japanese freighter and damaged another, when he found himself fighting a surface engagement with a Japanese gunboat.

Gunfire had badly wounded Gilmore and had seriously damaged his submarine. To save his ship he calmly gave the order to clear the bridge, knowing that his own life would be sacrificed, since time did not permit even the few seconds' delay needed to help him below. Unhesitatingly he voiced the order "Take her down." The well-trained crew, inspired by Gilmore's fighting spirit, brought the damaged submarine to port.

FLAG-RAISING ON IWO JIMA

Iwo Jima goes down in history as one of the most costly and frightful battles ever waged. Men had to die and keep on dying, for the Japanese, hidden in caves and camouflaged blockhouses, possessed plenty of ammunition and courage and knew just what the attack strategy would be. United States Marines from 300 invasion ships lying off the island had to deliver the knockout blows; had to go in and pour out their sweat and blood to take the island.

Landing on a most difficult beach, the Marines dug in and inched forward, while the Japanese, sheltered in concrete pillboxes and underground caves, continued to slaughter them with a murderous fire that kept raking the landing beaches from the very flanks of Mount Suribachi. The peak had to be captured, and the gruelling battle continued for days.

The symbol of victory is perpetuated in the group of six men—five marines and a pharmacist's mate—who raised an American Flag on the first piece of Japanese territory captured in World War II (figure 2-21). The date was 23 February 1945.

These six men (Sergeant Michael Strank of Pennsylvania, Corporal Harlan H. Block of Texas, Privates First Class Franklin R. Sousley of Kentucky, Rene A. Gagnon of New Hampshire, and Ira H. Hayes of Arizona; and Pharmacist's Mate Second Class John H. Bradley

of Wisconsin) are singled out to stand as representatives of what Admiral Chester W. Nimitz called the "uncommon valor" shown by the Marines on Iwo Jima at a cost of 5017 dead and 17,145 wounded.

These sacrifices live on in the minds and hearts of Americans. A monument and flagstaff were dedicated to those heroes on top of Mount Suribachi, and The United States Marine Corps War Memorial (a bronze statue with figures 32 feet high), immortalizing their deed, stands just outside Arlington National Cemetery, Arlington, Virginia.

KOREAN WAR

The Korean War had its acts of heroism also. There are innumerable accounts of men of the Navy and Marine Corps who gave their lives in this conflict.



134.18

Figure 2-21.—Raising the colors under fire after the charge up Mount Suribachi.

Representative of their stories is that of Private First Class Walter C. Monegan, Jr., who, when his battalion encountered six T-34 medium tanks destroyed one and halted the advance of the other five tanks with his rocket launcher. A few days later, North Korean tanks again menaced his battalion. Monegan snatched up his rocket launcher and started toward the enemy. He spotted three T-34s. He sent a round slamming into the nearest tanks, piercing its armored hull, and spraying the crew with fragments of steel. Turning quickly, he fired on the second, and it erupted in flames. Caught in the light of this roaring fire, he raised his weapon and advanced upon the third vehicle. Just as he was about to touch the trigger, he was killed by fire from an enemy machinegun.

VIETNAM

Most heroes are very much like the boy next door—nice guys, but not particularly unusual until, in time of crisis, they do most extraordinary things.

This section describes the actions of four men who distinguished themselves in combat in Vietnam by gallantry and intrepidity at the risk of their own lives above and beyond the call of duty. All four were awarded the Nation's highest award—the Medal of Honor; only one (James Williams) lived to receive the award personally.

MARVIN G. SHIELDS

Marvin G. Shields, CM3, was a Seabee attached to Mobile Construction Battalion 11 at Dong Xoai. Near midnight on 9 June 1965 the Viet Cong lobbed a mortar shell (or perhaps it was a rocket) over the compound. Everyone immediately grabbed his weapons and manned the defenses.

The attack was a heavy one, and although Shields was wounded early in the action, it didn't seem to slow down his fighting ability. When ammunition ran low, it was Shields who made several resupply trips to the ammo trailer, crossing 150 feet of ground exposed to mortar fire. When the VC came pouring in and the

defenders fell back to new positions, Shields and another man took the time to move an officer with both legs broken through a hail of bullets to the relative safety of the district headquarters building.

The attack continued through the night. Shields, although by now wounded three times, stayed in the action, repeatedly exposing himself to the enemy while tossing grenades. During the morning hours, a lieutenant asked for one volunteer to go with him and knock out a machine gun that was spraying the building with lethal effect. Shields, the boy next door, immediately offered his services. Although the two men accomplished what they set out to do, both men were hit, Shields fatally.

JAMES E. WILLIAMS

During much of his tour of duty in Vietnam, James E. Williams, BM1, directed operations of a group of four PBRs (Patrol Boat Riverine) along the Mekong River as part of the River Patrol Force.

On 31 October 1966, Williams' patrol was suddenly taken under fire by two Viet Cong sampans. The patrol's return fire killed the crew of one. Pursuing the other, the PBRs maneuvered through a heavy volume of small arms fire from VC forces hidden along the river bank, only to be confronted in a nearby inlet by two junks and eight more sampans. The patrol immediately came under savage attack augmented by heavy automatic weapons fire from ashore.

To make matters worse, when Williams deployed his group to await reinforcements in the form of armed helicopters, it ran into a much larger force of enemy craft. It being fairly obvious that the PBRs were not going to be permitted the luxury of simply waiting around for help, Williams counterattacked. During the ensuing action, he exposed himself to enemy fire with complete disregard for his own safety. Leading his patrol through intense fire, the patrol damaged or destroyed 50 sampans and 7 junks before the helicopters arrived. Williams then directed the attack on the remaining craft and the enemy ashore.

Demonstrating indomitable courage throughout the 3-hour battle, Williams was responsible for the loss or destruction of no less than 65 enemy boats and numerous VC casualties.

During his 8-month tour of duty, the 57 men serving on the 4 boats Williams directed earned a total of 131 combat decorations plus 30 Purple Heart awards.

FRANK S. REASONER

On 12 July 1965, a reconnaissance patrol led by company commander First Lieutenant Frank S. Reasoner, USMC, had deeply penetrated heavily controlled enemy territory when the patrol came under fire from 50 to 100 Viet Cong insurgents in concealed positions. Reasoner at the time was with the advance party and point; the slashing fury of the VC machinegun and automatic weapons fire made it impossible for the main body to move up. To provide covering fire, Reasoner repeatedly exposed himself to the devastating attack. Shouting encouragement to his men, he organized a base of fire for an assault on enemy positions. He killed two VC and silenced an automatic weapons position in an attempt to effect evacuation of a wounded man.

When his radio operator was hit, Lieutenant Reasoner himself tended his wounds. The radioman then tried to reach a covered position but was hit again. In the face of almost certain death, Reasoner left cover to help him a second time, and in the attempt was cut down by machinegun fire.

The first Navy ship to be named after a Marine Corps Medal of Honor recipient in Vietnam, *USS Frank S. Reasoner* (DE1063), was commissioned in 1971.

DOUGLAS E. DICKEY

During Operation Beacon Hill on 26 March 1967, the platoon of which Douglas E. Dickey, PFC, USMC was a member engaged in a fierce

battle with the Viet Cong at close range in dense jungle foliage.

Dickey had come forward to replace a wounded radio operator. Without warning, an enemy grenade fell in the middle of the group of men that included the immobilized radio operator, the Corpsman treating him, Dickey, and several other Marines. Fully realizing that it meant certain death, Dickey unhesitatingly threw himself on the grenade, absorbing with his own body the full and complete force of the explosion. PFC Dickey's personal heroism, extraordinary valor, and selfless courage saved his comrades from certain injury and possible death.

Another boy from next door had done a most extraordinary thing.

CHAPLAIN VINCENT R. CAPODANNO

At mid-afternoon on September 4, 1967, Company M, 3rd Battalion, 5th Marines made contact with North Vietnamese Army Forces in Quang Tin Province, Republic of Vietnam. The 5th Marines Regimental Chaplain, Vincent R. Capodanno, LT, CHC, USNR, who was accompanying this element of his regiment, was positioned with the Command Group. When word was received that one of the platoons had made contact and was in danger of being overrun, Chaplain Capodanno ran directly to the beleaguered Marines. He proceeded to assist the Corpsmen, provide comfort and reassurance to the wounded, and administer Last Rites to the dying. In the midst of heavy mortar and automatic weapons fire, he ministered to his men calmly and without faltering. Although wounded, he refused treatment for himself. When it became necessary to use gas masks, he gave his own to a Marine. At a point of particularly heavy attack, he placed himself directly in the line of fire in order to protect a wounded Navy Corpsman. In this act he gallantly gave his life in the service of his fellowman, his God, and his country. For his selfless courage, Chaplain Capodanno was posthumously awarded the Medal of Honor.

CHAPTER 3

THE NAVAL OFFICER'S CAREER

What moves an individual to become a naval officer? A representative and fully honest listing of motivating factors must include not only varying shades of patriotism and the desire to serve, but also a number of other reasons that demand examination. Rarely is anyone impelled to any action by a single force. As people are complicated, so also are the things that influence them to act.

That there must be dedication is obvious. That a naval officer is a professional in the truest sense of the word is equally obvious. Dedication will smooth the rough spots that invariably lie in the path of any endeavor. Professional knowledge and competence must exist if the complex and perplexing problems and situations that often are the naval officer's lot are to be properly resolved.

Individuals, upon entering the Navy, are administered an oath by which they swear to uphold and defend the Constitution against all enemies; to bear true faith and allegiance; and to faithfully discharge the duties of their office. There is little doubt as to what is demanded of an individual making such an oath.

When a man or woman is commissioned, they reaffirm the basic oath but there is a good deal that is added by the fact of their commission; many newly commissioned officers are not certain of the total implications of their new responsibility. The President, as a representative of the people of the United States, having "special trust and confidence" in the abilities of the officer, has granted them extensive authority. These officers have become party to a contract with the Nation. The terms have been previously spelled out. The Nation will keep its bond; it expects no less from them.

The most concise way of expressing the officer's responsibility is to say that they acquire a strict moral obligation to do all in their power to render themselves fully capable of leading men and women in war. These are the irreducible terms of the commission.

Career officers are of necessity aware of their tremendous responsibility, and it must constitute at least a part of their justification to themselves for choosing this way of life. Their measure of dedication will be closely proportional to their full understanding of what lies at the base of the authority vested in them.

We are a Nation that has finally learned that possessing strength of arms is a necessary part of ensuring security. We never seek war; but, by staying prepared and vigilant, we offer any aggressor the spectre of his defeat, and in retaliation for aggression, the solid prospect of his destruction. If armed conflict becomes necessary, the officer will be called upon to lead into battle the Nation's most prized possession—her young men.

In the uneasy peace in which we live, the officer's responsibility is similarly impressive. They are charged with doing everything in their power to maintain and increase national strength. This they accomplish by proficiency in professional skills, proper training and guidance of their subordinates, development of improved devices and methods, and by exercising the most exacting and unrelenting care of the men, women, and materials placed in their trust.

In considering the demanding nature of the calling, the career officer is entitled to ask: "How do I conduct myself so that while following the

clear line of duty I may ensure some benefit to myself?" This question passes to the other major aspect of our postulated "dedicated career." Naval service must have some attraction beyond the selfless ideals of patriotism. Later in this chapter we will discuss this aspect in some detail. Here only the most general comment will be made.

First of all, career officers may expect the gratitude of their Nation. This gratitude is expressed in tangible ways. Their pay and allowances are established and maintained by law. In the event of their sickness or disablement, their welfare is ensured. By virtue of their status as officers, they are held in respect by their fellow citizens and have an inherent prestige that few other professions can equal. Second, they will find in their tours of duty a varied and challenging life. Their active duty eventually takes them to many parts of the world and, regardless of their position as a line or staff officer, they will be called upon to perform a great number of different tasks. They have educational opportunities that not only will enhance their career but also may serve them upon their eventual return to civilian life. They serve and become comrades with an almost infinite variety of men and women. They encounter a minimum of personal favoritism and consequently a continuing opportunity to advance by virtue of their own merits and abilities. In short, their lives are seldom routine and never dull. It is not a haphazard existence, despite its intriguing variety. The leveler is the fact of membership in a competently administered, well-organized professional Navy.

OFFICER PROCUREMENT

The current requirement for naval officers on active duty is about 63,000. Approximately 8,000 persons are commissioned as Regular or Reserve officers and ordered to active duty each year. The Navy's active duty officer programs are aimed at the fulfillment of established goals based on projected requirements. Because the Regular officer procurement programs do not provide sufficient officers to maintain the USN structure, qualified Reserve officers who apply

are selected for USN status as needed to maintain the career officer cadre of the Navy.

REGULAR NAVY OFFICERS

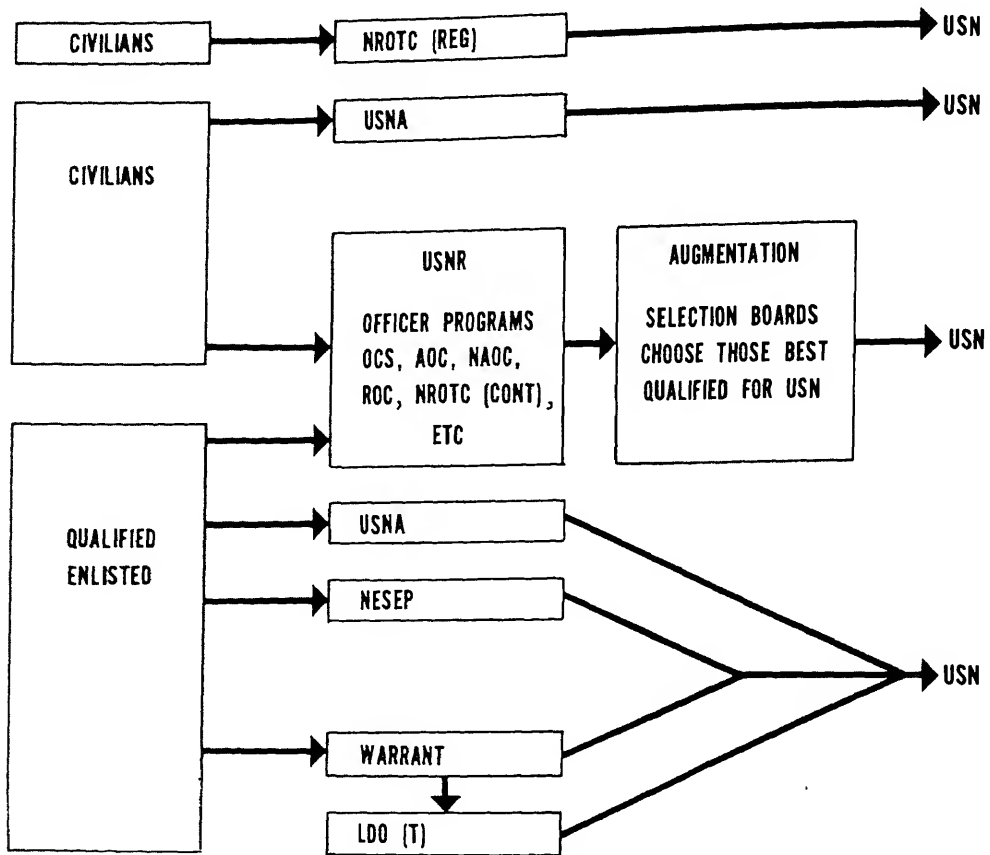
In the Navy of several decades past, it was axiomatic that the only path to flag rank started with a Naval Academy education. While it is true that there were career officers who had come up from enlisted status, it was equally true that if a person aspired to high positions of command responsibility, they had almost perforce to be an Academy graduate.

This is no longer true. The Naval Academy still holds a preeminent position as a source of career officers; but because of the continuing increase in the Navy's size and complexity, there now exist other programs to supplement the Academy as a primary source of educated and basically trained officers. (See figure 3-1.)

United States Naval Academy

An outstanding weakness of the service in the early days was lack of adequate training for young officers. Although chaplains and schoolmasters were carried aboard ship, midshipmen frequently received rudimentary and haphazard instruction. The advent of steam warships and the need for midshipmen who could qualify in engineering, together with the threat of a war with Mexico, played their part in the founding of the Naval Academy in 1845. The major credit for establishing this institution goes to Secretary of Navy George Bancroft, who had earlier distinguished himself as an educator, diplomat, and historian.

The Naval Academy was a major reform in the training of young men as future officers. Prior to the Academy's founding, midshipmen had secured most of their training aboard ships of the fleet. There were no accepted standards of performance nor governing regulations on training. Though many acquired a reasonably good, practical education under the guidance of well-intentioned ship's captains, there were at



134.19

Figure 3-1.—A number of programs exist to supplement the Naval Academy as a source of trained officers.

least an equal number who suffered the ill effects of the haphazard training and bad example inherent in such a system.

The Naval Academy is located on the site of Old Fort Severn in Annapolis, Maryland. It has been there since its inception, except for a temporary move to Newport, Rhode Island during the Civil War as a measure to avoid capture by the Confederates. It has grown into an impressive array of buildings and facilities located where the Severn River flows into Chesapeake Bay. Its enrollment, like its physical growth, has been dynamic. From an initial enrollment of 50 students, there are now more than 4000 midshipmen in the Brigade.

In general, candidates for the Academy must be United States citizens, between the ages of 17

and 22, of good moral character, and unmarried. A small number of nationals from certain foreign countries are permitted by law to attend. They are not eligible for commissions, but receive the same training and are governed by the same regulations as are other students.

Candidates receiving Vice Presidential and Congressional appointments, and those who are sons of holders of the Medal of Honor are appointed directly. The Vice President and each Congressman may have five of their appointees in the Academy at any one time. They may allocate these on the basis of one principal and nine alternates on an appointive basis or award them competitively with ten applicants vying for each vacancy existing at that time.

Remaining appointments are strictly competitive and are awarded on the basis of

Chapter 3—THE NAVAL OFFICER'S CAREER

those considered best qualified as set in the Academy's "Whole-Person Evaluation." Competitive appointments are available in the following general classes:

1. Presidential 100 available each year to sons and daughters of members of: the regular and reserve components of the armed services who are on active duty and have served continuously on active duty for at least 8 years; retired personnel; and those who died while in receipt of retired pay.
2. Regular Navy and Marine Corps 85 enlisted members a year.
3. Naval and Marine Corps Reserve 85 enlisted members a year.
4. NROTC students, and graduates of honor military and naval schools 20 annually (normally 10 from each category).
5. Deceased and disabled veterans 40 vacancies are set aside for the sons and daughters of members of the Armed Forces who were killed in action or died of, or have a 100 per cent disability resulting from, wounds or injuries received or diseases contracted in, or preexisting injury or disease aggravated by, active service.
6. District of Columbia 5 at any one time.
7. Virgin Islands, Guam, American Samoa, Puerto Rico, and Canal Zone 1 at any one time.

8. American Republics 20 at any one time; no more than 3 from any country.
9. Congressional Qualified Alternates The first 150 vacancies of an unfilled class quota are reserved for congressionally appointed alternates.

To bring an entering class up to strength, the Secretary of the Navy (SECNAV) may appoint additional nominees from the remaining qualified alternates and competitors in order of merit. Three-fourths of these appointments must be filled by Congressional Qualified Alternates.

To gain admission to Annapolis a candidate must (1) meet general eligibility requirements, (2) obtain a nomination, and (3) qualify both scholastically and medically.

During the 4 years at the Academy, midshipmen receive an excellent academic and professional education. Every attempt is made to supplement classroom and laboratory work with practical application at Academy facilities and on summer cruises. Each midshipman participates in summer training periods with the exception of women candidates which last about 5 weeks and introduce the future officer to the personnel—methods, facilities, and problems of the service. During summer indoctrination periods, midshipmen are introduced to all areas of the service including submarines, aviation and the Marine Corps.

The academic life is complemented with a variety of athletic and social activities to round out the individual's personality and develop the comradeship that is the basis for Brigade and Navy esprit de corps. Considerable emphasis also is placed on the religious life of the midshipmen. Services of every denomination are available at the Academy or in Annapolis.

Upon graduation, the new officer receives a bachelor of science degree and a commission as an ensign in the United States Navy or, if desired, as a second lieutenant in the Marine Corps.

Naval Reserve Officer Training Corps Scholarship Program

The NROTC Scholarship Program (the College program is discussed in a later section) produces Regular Navy officers from NROTC units in operation at many colleges and universities throughout the United States. It is the most highly competitive officer candidate procurement program in the Navy, only about 10 percent of those applying being selected for enrollment. The annual output is approximately 1200 new officers commissioned mainly in the unrestricted line.

The Naval Science courses which the students take are in addition to the courses required for graduation in their majors. A basic concept of this program is that the output complements the Naval Academy, which lacks the capacity to produce all of the Regular officers necessary to meet strength requirements.

Applications for NROTC scholarships are accepted annually. A qualified applicant will be required to undergo a physical examination and a series of interviews at a naval recruiting station. If physically qualified, the application, which contains the results of college board test scores, physical exam, and comments of the interviewers, plus complete academic background information, is forwarded to a selection committee for determination of those to be awarded principal and alternate appointments. The selection committee selects candidates within a fair share limitation based on the total number to be appointed nationally. Successful candidates indicate their college choices and usually will be nominated to their first choice (if a principal candidate). If not admitted by the college under the quota authorized, they will be nominated to the highest of their choices where NROTC vacancies exist. If accepted they are officially sworn into the Navy and appointed midshipmen, USNR. Alternates are chosen in the event principal selectees resign from the program before the academic year begins.

Eligibility requirements are that a candidate must—

1. Be a citizen of the United States.

2. Have reached the seventeenth anniversary of birth by 1 Sept of the year in which application is made.

3. Not have reached the twenty-first anniversary of birth by 30 June of the year in which application is made. (Those contemplating a baccalaureate degree that requires five years to complete must not have reached their twentieth anniversary of birth.)

4. Be physically qualified in accordance with the standards prescribed for midshipmen.

5. Be a high school graduate or possess an equivalent certificate.

6. Plan to participate not less than four years in the program; that is, must successfully complete four years of naval science and all requirements for commissioning.

7. Have no moral obligations or personal convictions that will prevent conscientiously bearing arms and supporting and defending the Constitution of the United States against all enemies, foreign and domestic.

The NROTC organization of the college or university is centered in a Department of Naval Science normally headed by a Navy captain or Marine Corps colonel with the title of Professor of Naval Science. The instructors, Navy and Marine Corps officers, hold academic ranks as assistant professors. A dominant factor in selecting officers for this important duty is that they must possess academic ability and have had diversified duty experience. The latter adds to the store of academic knowledge that they impart to the midshipmen and provides a realistic framework from which they can instill in their students a highly motivated interest in the naval service.

Normally, eight naval professional courses (Navy faculty taught) are taught along with weekly laboratory periods for practical work in the naval courses studied. In the early fall and late spring, this time is utilized for close order drill.

Future Marine lieutenants make their choice during the first two years. For the last two years their program of instruction and training differs from that given prospective ensigns. (See chapter 11.)

NROTC Scholarship students are permitted to select, with the approval of academic

authorities, a field of study leading to a baccalaureate degree, subject to certain limitations. Exempted as majors, for example, are studies in such academic fields as music, theology, and others deemed of limited value to naval officers.

The Navy requires that midshipmen acquire a background in physics and mathematics, and a general proficiency in written and oral expression. Students are encouraged to participate in any of the extracurricular activities offered by the school as long as they do not directly conflict with the schedule of Navy classes and drills.

The NROTC midshipman has approximately equal summer cruise obligations as the contemporary from the Naval Academy. The student receives tuition, laboratory and administrative fees, uniforms, and a \$100 a month subsistence to defray other expenses.

Upon graduation and commissioning, a student is required to serve on active duty for four years. At the end of this period the officer is retained in the Regular Navy or Marine Corps unless he/she requests release from active duty and a Reserve commission.

Augmentation Program

The Augmentation Program provides an avenue for Reserve and temporary officers to transfer to the Regular Navy. The program has two objectives: (1) to increase the total number of officers in the Regular Navy, and (2) to meet deficiencies in (augment) numbers of officers existing in certain year groups.

Eligibility requirements and application processing procedures are set forth in the Bureau of Naval Personnel Manual. The program is essentially competitive and selection is based on past performance of duties as well as career potential.

Officers desiring augmentation apply through their commanding officer, including in the request information pertaining to their backgrounds, training, and experience. The commanding officer's endorsement discusses the applicant's motivation and potential, and makes

a specific recommendation concerning the request.

Selection is made by a SECNAV-convened continuous selection board that meets at least quarterly. A successful candidate normally is designated in the same category requested and with the same date of rank that he/she holds on the date the Regular Navy appointment is effected.

NESEP.—The NESEP is an uninterrupted 4-year-maximum college education program available to outstanding petty officers (men and women) in the Regular Navy or Naval Reserve serving on active duty. The program leads to a baccalaureate degree in engineering, science, or mathematics. A Bureau of Naval Personnel (BUPERS) selection board nominates only those candidates who are considered capable of high-level college performance and qualified to be future line officers.

In the summer before entering college, selectees receive, at one of two naval preparatory schools, about nine weeks of refresher training in mathematics, chemistry, physics, and English, plus orientation in college academic requirements.

Upon completion of the preparatory training and acceptance at a participating college or university, the trainees obligate themselves to serve for six years in the Regular Navy. While in school, students maintain their enlisted status and receive full pay and allowances. They pay for their subsistence, lodging, tuition and books. The student can obtain assistance in paying these expenses by utilizing their in service benefits.

Having completed an officer indoctrination course at OCS in the summer prior to graduation and after receiving their degrees, NESEP graduates are appointed ensigns, primarily in the unrestricted line.

The minimum service payback requirement for participation in NESEP is four years. NESEP participants who terminate or complete their undergraduate training after commencement of the third academic year will be required to serve on active duty for five years.

NOTE: The Navy canceled the NESEP program in September 1977.

WARRANT OFFICER PROGRAM.—The mounting sophistication of ships, aircraft, and weapons requires not only capable enlisted technicians but also commissioned officer specialists who can closely supervise complicated machinery and weapons and the persons who maintain and operate them.

A warrant officer, although commissioned from the enlisted ranks, may be considered as the person who bridges the gap between the enlisted and commissioned structures. The WO structure provides flexibility in at least two areas: (1) a warrant officer grows in the level and scope of competence during his or her progression through the enlisted and warrant fields, but remains within the specialization category; and (2) can be assigned repeatedly to similar billets largely irrespective of grade within the structure. A WO is not "promoted-out" of billet levels; regardless of grade or assignment, he/she remains an officer-technician-supervisor.

The WO program, open to both men and women, provides a path of advancement to warrant status for outstanding chief and first class petty officers of the Regular Navy and Naval Reserve for the performance of duty in the technical fields indicated by their enlisted ratings. All applicants must take the officer selection battery test. They must be on active duty to be considered by the selection board, and, if selected, remain on active duty until the time the appointments are tendered. Selectees receive six or eight weeks' training (depending on their categories) at an officer indoctrination school, followed by technical training as appropriate. (Supply Corps personnel, however, receive six months' training.)

The appointment of each chief and senior chief petty officer will be to the grade of chief warrant officer, W-2. Master chief petty officers will also be appointed to W-2 but can be recommended for appointment to W-3 if they fulfill the following requirements:

1. Must have served a minimum of two years during the 20 to 24 years of service period performing duties which equate to those of a chief warrant officer, W-2.

2. Must have performed such duties in the warrant technical speciality for which application is made.

LIMITED DUTY OFFICER (LDO) PROGRAM.—The most attractive asset of the LDO Program is that, somewhat like the WO, it permits an officer the opportunity to continue working in the broad technical field associated with his rating.

Inputs are limited to selected male warrant officers and senior male enlisted personnel. The appointment of each selected commissioned warrant applicant will be in the temporary grade of lieutenant (junior grade). Selected enlisted applicants will be appointed to the temporary grade of ensign.

NAVAL RESERVE OFFICERS

Reserve officers on active duty are those serving under an obligation and those who have voluntarily agreed to remain on active duty beyond their initial obligation.

In general, applicants for commissions in the Reserve programs must have baccalaureate degrees or higher. Those who have not completed their military service obligations under the law (see chapter 12) are eligible to apply only for a program that leads to immediate active duty on appointment (unless they are medical, dental, or theological students and certain licensed officers of the merchant marine). Applicants who have completed their military obligation are eligible for direct appointments, but they must agree to participate in inactive duty Reserve training. Officers directly appointed may volunteer for recall to active duty, and orders are issued if there is a need for their services.

Reserve officers, active and inactive, are vital to the successful accomplishment of the Navy's mission. Their backgrounds are tremendously varied, but they all have one common denominator—a preference to serve their country in a Navy uniform.

Programs for appointing officers in the staff corps that are not discussed here, and for appointing women officers in the unrestricted line and some staff corps can be found in the *Career Counseling Manual* (NAVPERS 15878).

The following are brief descriptions of the major programs that produce Reserve officers of the Navy.

NROTC COLLEGE PROGRAM

The NROTC College Program is very similar to the NROTC Scholarship Program. The differences that exist pertain mainly to selection methods and requirements, amount and kind of academic subsidization, and active duty obligation upon commissioning.

The selection of student candidates is made by the Professor of Naval Science of the NROTC unit from newly enrolled freshmen or sophomores in 4- or 5-year courses. The students participate in one summer cruise. They receive their uniforms, naval texts, and a subsistence of \$100 a month in the last two academic years. Graduates are commissioned in the reserve of the line, and currently must serve on active duty for not less than three years.

NROTC (TWO-YEAR COLLEGE PROGRAM)

Candidates selected for the Two-Year Contract NROTC Program must successfully complete a six-week course of instruction at a Naval Science Institute during the summer prior to enrollment; the Science Institute fulfills the requirements of the first two years of the program missed by selectees. The remaining junior and senior years of the Two-Year College Program are identical to other NROTC programs.

Two-Year NROTC College students receive the same benefits as Four-Year NROTC College students. They receive Reserve commissions in the unrestricted line, and Marine Corps, and they are required to serve on active duty for three years.

Officer Candidate School Program

The Officer Candidate School was established in February 1951 as a temporary

means of providing a source of Reserve officers to meet increasing personnel demands occasioned by the Korean conflict. Continuation of the "Cold War" and consequent maintenance of a Navy requiring an officer output greater than the USNA and NROTC sources could provide has resulted in continuous operation of OCS. OCS produces the largest share of the great pool of trained Reserve officers upon which rapid emergency expansion depends. It is a pathway to a commission for two important groups—the college graduate and the enlisted member with the required academic qualifications.

The pace of OCS is strenuous in that officer candidates are required to complete a highly concentrated course in Naval Science in 19 weeks; the fundamentals of Naval Science are crammed into approximately 470 classroom hours. This is a large order, but it can be done inasmuch as officer candidates have already received their baccalaureate degrees and are not concerned with academic subjects as are Naval Academy and NROTC midshipmen. Students can concentrate on Naval Science utilizing the study habits sharpened in 4 years of college.

Among the Naval Science subjects taught are seamanship, navigation, naval weapons, naval operations, engineering, principles of leadership, military justice, management, communications, and naval orientation.

Between classroom instruction periods candidates have at least 1 hour per day of close order drill, first aid instruction, pistol practice, swimming, or some of the other skills that are a part of a naval officer's training.

Leadership, as an art, is stressed at OCS. Thus, the officer candidate is closely evaluated for the qualities upon which leadership is based.

Upon successful completion of OCS, the officer candidate is commissioned an ensign in the Naval Reserve and serves 3 years on active duty. If he or she desires, they may subsequently apply for a Regular Navy commission. If they do not choose to make the Navy a lifetime career, they can return to civilian life at the end of their active duty and complete the remainder of their military obligation on inactive duty in the Naval Reserve.

AOC and NFOC Programs

The Aviation Officer Candidate and Naval Flight Officer Candidate Programs are basically similar except for the last part of training. The AOC Program is designed for those who wish to become Naval Aviators; the NFOC for those desiring billets in airborne technical specialties such as Radar Intercept Officers (RIOs), Advanced Radar Navigators (ARNs), Celestial Navigators and Airborne Tactical Data Systems Operators (ATDs).

Applicants for either program must be at least 19 years of age and either recent college graduates or in their senior college year. Selected candidates are ordered to the Aviation Officer Candidate School at Pensacola, Florida for 16 weeks of indoctrination training, upon successful completion of which they receive their commissions as ensigns. They then receive basic and advance training, the AOC for 16 months and the NFOC for from 7 to 11 months, depending on the type of billet for which in training.

Reserve Officer Candidate Program

The Reserve Officer Candidate Program is open to college undergraduates, including enlisted members of the Naval Reserve on inactive duty. Selected candidates are, if not already members, enlisted in the Naval Reserve for 6 years. College students participating in the program attend OCS for two periods of 9 weeks each: once for their basic training, usually during the summer between junior and senior year; and again upon graduation from college for advanced training. In essence, the program of studies offered the ROC students is identical with that of Regular officer candidates except that it is carried over two different training periods. Successful completion of the two training periods and receipt of a baccalaureate degree is required prior to appointment as ensign, USNR. Participation in the Naval Reserve program in a drill status is not required.

Satisfactory performance in the program defers candidates from induction into active

military service. Each candidate must agree in writing to accept a commission, if tendered, and to serve on active duty for a period of 3 years following appointment. ROCs who have fulfilled the requirements of the Military Selective Service Act of 1967 (discussed in chapter 12) are not required to serve on active duty. Disenrolled ROCs must fulfill the obligation incurred upon enlistment in the Naval Reserve.

Direct Appointment

Civilian college graduates who are qualified in appropriate specialties may be appointed directly from civilian life in certain categories of the line and staff corps.

Specific requirements for and availability of direct appointment programs vary according to needs of the Navy. Current information concerning such programs may be obtained from Navy Recruiting Main Stations.

DISTRIBUTION AND PROMOTION OPPORTUNITIES

The Navy prior to 1940, as compared with that of today, was a relatively small and stable organization. The officer corps was comprised nearly 100% of career officers. Their assignment and rotation followed an established pattern that was common knowledge to all. World War II, the Korean conflict, complex international commitments, and modern technological advances have resulted in a change in the composition of our officer corps, our fleets, and in the establishment of joint defense commands in which the Navy plays a key role. These factors necessitate a larger and more complex Navy than that which existed prior to World War II.

The Navy, therefore, makes its personnel predictions based on the expectation of remaining at or very near its present manning level and, at the same time, retaining a sufficient cadre of career officers so that it can expand rapidly in the event that international tensions erupt into armed conflict.

Because many junior officers return to civilian life after completing their minimum

active duty obligations, there is a large drop in numbers between the grades of LTJG and LT. Career-wise, this results in an unprecedented opportunity today, and in the foreseeable future, for young officers to reach the top of the promotion ladder. Juniors have unparalleled chances to assume positions of leadership and responsibility. Many lieutenants junior grade and, at times, ensigns, are ordered to billets normally filled by more senior officers.

Regulations governing officer promotions are the result of an evolutionary process. Beginning in 1947, with passage of the Officer Personnel Act, several major pieces of legislation have been collected and codified in Title 10 of the United States Code. Laws pertaining to promotion represent the product of much experience and progress. They are designed to meet the needs of the naval service and to provide an equitable opportunity for a full and rewarding career for all who cherish the naval profession.

The following definitions and terms identify the status of officers as prescribed by Title 10, U.S. Code:

1. A line officer is an officer serving in the grade of ensign or above in the line of the Regular Navy or Naval Reserve.
2. A staff corps officer is one serving in the grade of ensign or above in one of the staff corps of the Regular Navy or Naval Reserve.
3. An officer restricted in the performance of duty is a line officer individually designated by the Secretary of the Navy for special duty (such as communications, intelligence, or cryptology), or restricted duty (e.g., engineering duty, ordnance engineering); or a line or staff corps of the Regular Navy designated for limited duty.
4. TAR is an abbreviation commonly used to identify Reserve officers serving on active duty in connection with the training, administration, recruiting, and organization of the Reserve component of the Navy. The TAR officers are excluded from the lineal list of the Navy.

Promotions are effected under the dual system which specifies that, initially, all promotions for male commissioned officers are temporary; as vacancies occur in the permanent structure, an officer with a temporary promotion receives a permanent one for that grade. Pay, eligibility rights, and retirement benefits are computed on the basis of the initial or temporary appointment. A temporary appointment may be terminated by the President and an individual reverted to the grade of their permanent appointment. This usually occurs only in the event of drastic reductions in the size of the Navy that would reduce the authorized numbers within each grade. A permanent appointment may not be revoked, suspended, or canceled except by formal legal proceedings.

The overall promotional picture is essentially that of a pyramid rising from a broad base of junior officers to the few senior flag officers near the top and to the one Chief of Naval Operations. If there is to be a realistic flow of promotions up the pyramid, all who enter at the bottom cannot reach the top, although each officer has the same opportunity as their contemporaries to vie for the top grades.

In the area of officer promotions, there are three interdependent controls: distribution, flow rate, and attrition. Promotion controls are necessary to ensure that those who reach the senior grades are best fitted to perform the military requirements of those grades, and that they reach those grades at ages consistent with the military requirements.

Distribution refers to the required number of officers in each grade. Maximum ceilings are set by law; but otherwise annual vacancies are prescribed by SECNAV, based on current and anticipated needs of the Navy.

Flow rate is the rate at which officers are promoted to higher grades. It has been determined on the basic principle that, except for the relatively few officers selected to flag rank, the maximum career will be 30 years in length for those who achieve promotion to captain.

By attrition is meant the percentage of officers who must be separated as others in their

promotional group ascend to a higher grade. Unless vacancies were created in the higher grades, promotions would be slowed to an unacceptable degree, resulting in less than equal opportunities for succeeding year groups of officers. A number of vacancies are created through natural attrition—deaths, resignations, discharges, voluntary retirement. The rate is fairly constant, but not great enough to meet the desired promotion flow rate.

To maintain a normal promotion flow rate within the limits of grade distribution, the Navy utilizes forced attrition, which is determined by a long-range study that projects promotions over a 5-year period. An attrition percentage is applied, for each grade, to the current year's promotions to determine the number of officers who must fail of selection. As a rule, rate of attrition increases with grade, and may be tabulated somewhat as follows:

<u>For promotion to</u>	<u>% of attrition</u>
Captain	40
Commander	30
Lieutenant commander	25
Lieutenant	5
Lieutenant junior grade	0

The number of officers placed in each promotion zone in excess of the number to be selected represents the minimum number that must fail selection to provide the percentage of forced attrition required by the long-range studies. The size of a promotion zone, then, reflects vacancies that will exist during the ensuing year plus application of the forced attrition variable.

This might better be explained by an example. Assume that the promotion opportunity for unrestricted line officers to the grade of LCDR is 85%. This means that of every 100 officers eligible for promotion, 15 must be passed over. But another factor enters the picture: those promoted from above and below the promotion zone. Officers within the zone who fail of selection are placed above the following year's promotion zone for further consideration. Every selection made from either above or below the normal promotion zone means a passover in the zone itself.

A temporary appointment to the grade of lieutenant junior grade is delivered to an ensign upon his completion of 24 months' satisfactory service in grade. For other than promotion to LTJG, selection for promotion up to and including rear admiral is made by SECNAV-convened selection boards composed of officers nominated by the Chief of Naval Personnel and selected by SECNAV. A selection board is charged to—

1. Consider impartially the cases of all officers submitted to it.

2. Select those best fitted for promotion within prescribed numerical limitations.

3. Report the names of any officers who have less than 20 years of service and whose records, in the opinion of the board, indicate unsatisfactory performance of duty and unlikely prospect of promotion to higher grade. This reporting is done so that they may be separated from the active list.

4. Submit its report to SECNAV for his recommendation and final approval of the President.

Because officers on the board are responsible for selecting "the best fitted," it is appropriate that they themselves be in this category. Therefore, they are chosen not only on the basis of integrity and experience but must never have failed selection to any grade.

In addition to their duties of evaluation and selection, the boards are required to reconstitute themselves as examining boards after completing the initial selection process. This has the effect of rendering a second or confirming opinion on those selected for the next higher grade or for those officers selected for separation. This double screening may appear to be a duplication of effort, but actually the functions are complementary rather than parallel. Selection board action is based on comparing the abilities of an officer with those of his contemporaries. When acting as an examining board, that board compares the performance of the individual with a set of standards prescribed by the Navy Department.

Their entire function is extremely serious and imposing. It calls for exercising the most mature judgment in making evaluations of relative merit. In this connection it should be noted that those officers failing selection are not necessarily poor officers nor are they unqualified. The attrition, particularly to the more senior grades, dictates that many completely satisfactory officers are being left behind. This is one of the unfortunate features of the pyramid system. Some officers must, by law, be left behind as their contemporaries advance to each successively higher grade.

Lieutenants and lieutenants junior grade who twice fail of selection are honorably discharged on the last day of the fiscal year in which the second failure occurs. LCDRs, CDRs, and CAPTs who twice fail of selection may continue to serve and remain eligible for consideration. They are involuntarily retired, if not on a promotion list, upon completing 20, 26, and 30 years, respectively, of total commissioned service.

Promotions above rear admiral are appointive and therefore beyond the scope of selection board recommendation. When rear admirals complete stipulated periods of time in grade and commissioned service (5 years and 30 years for unrestricted line, for example), selection boards, at that time and at ensuing 3-year periods, recommend either their continuation on the active list of the Navy or their retirement.

During the course of a year, from 40 to 50 selection boards may convene in BUPERS for the purpose of selecting officers for promotion. The panels may be in session for anywhere from 10 days to about 6 weeks, depending on the numbers of officers eligible for promotion. (Other boards, such as those selecting E-8s and E-9s, enlisteds for warrant, warrants for LDO, NESEP students, and students for the Postgraduate School may exceed 100 each year, deliberating from less than a day up to 8 weeks.)

PROMOTION OPPORTUNITIES FOR WOMEN; PUBLIC LAW 90-130

The permanent women components of the Navy, for other than the several Medical

Department corps, were created by the Women's Armed Services Integration Act of 1948. Personnel management policies that previously had applied only to men were thereafter to apply also to women "except where obviously inapplicable." Even so, there were inadequacies in the act that limited promotion opportunities and restricted career tenure for women officers in all services.

For one thing, there was very little prospect for a woman naval officer to attain a grade higher than commander. The Assistant Chief of Naval Personnel for Women was a captain, and there were a few female captains in some staff corps (e.g., Nurse and Medical), but these were exceptions to the rule. There was also a statutory provision limiting the number of female officers in the grades of commander and lieutenant commander to 30% of the total number of women line officers, including Reserves. These two factors combined created a large surplus of junior officers. By 1967 it was estimated that the attrition rate of women line lieutenants would average 50% for the next 5 years (as compared to about 5% for male lieutenants). The necessarily high forced separation rate brought about a very difficult situation, and many fine women officers were being lost to the Navy because of it. It became apparent to all services that policies which for some 20 years had been "obviously inapplicable" to women were no longer so.

Public Law 90-130, enacted 8 November 1967, amended the Women's Integration Act to enhance both promotion opportunities and tenure.

Changes relating to promotion increase the prospects for advancement to more senior grades; Congress also eliminated percentage restrictions on the number of women appointed to those grades, authorizing the Secretary of the Navy to decide how many officers are needed in each grade, as he does for male officers.

Promotion to the grade of captain is now part of a woman officer's normal career pattern; commanders are eligible for consideration for promotion after 4 years in grade. Public Law 90-130 also authorizes promotion of women to the grade of rear admiral. Such a promotion,

however, not being within the career pattern, depends on two circumstances: the Secretary of the Navy must make a determination that (1) a position is of sufficient importance and responsibility to require an incumbent of flag rank, and (2) a woman is as equally qualified as a man to perform the duties of that position. There is no minimum quota of women flag officers; hence, there is no guarantee that a woman will attain the grade.

Career prospects for women were further improved by changes in the system of promotions. Under the 1947 act, a woman officer became eligible for consideration for promotion after completing prescribed periods of service in grade, and there were no other limitations as to whom a selection board could consider. In other words, because one was eligible for consideration was no guarantee she would be considered. The concept of failure of selection (up or out) did not apply, and a woman lieutenant might be faced with career uncertainty for years.

To prevent the stagnation of young officers in junior grades, Public Law 90-130 adopts the promotion zone system for women officers; like their male contemporaries, all eligible women within a stipulated seniority group are now considered annually for promotion to appropriate grades. Under the promotion zone method, women officers no longer face the prospect of being forced out of service simply because they were not considered for promotion.

Career incentives for women officers are greatly increased by Public Law 90-130, and opportunities for women now more nearly approximate those of men. There is similarity in the opportunity for promotion to grades through captain; there is substantial similarity of promotion procedures; and terms governing involuntary separation are basically now the same for women as for men.

ASSIGNMENT AND ROTATION PATTERNS

In the assignment of officer personnel, the Navy is influenced by needs of the service,

current composition of the officer corps, and the professional development of each officer. Every effort is made to place officers in billets of their choice while still following practical considerations of service needs and individual qualifications.

Service need is simply the day-to-day requirement of Navy activities for specific grades with certain talents. Professional development has a dual nature. In ordering officers to varied types of duties and schools, the Navy not only is furthering its own mission of preparing these officers for future command responsibilities but also is performing a genuine service for them in filling out their experience and thus increasing their promotional prospects. The desires of the individual officer are also of importance as they have an obvious bearing on his/her morale.

Marital and dependent status, geographical and fleet preference, school requests, and other personal considerations play an important part in the final determination of duty assignment.

We limit our discussion in this section to rotational patterns of the unrestricted line (surface, submarine, aviation) and supply. In these patterns, as well as in those not mentioned, a common factor is present. Both the individual officer and his/her succession of detailing officers must be aware that only through a concentrated and continuing effort to develop knowledge and experience can the proficiency be gained that will see the officer successfully through rigors of responsibility and challenge of command.

With few exceptions, orders involving permanent change of station for officers are originated by the Chief of Naval Personnel. The BUPERS Manual contains basic policy pertaining to officer rotation. This policy is concerned with varying the types of duty assignments, inasmuch as this is the basic requirement in developing an officer's capabilities and in providing the officer with a full career. Deviations from basic policy are provided as necessary to meet problems that arise. At the present time, these occur due to the increasing size of the shore establishment and the shortage of "hard core" career officers.

In addition to the requirements for rotation, assignment patterns reflect the need for—

1. Educational opportunities for overall career value or for utilization in a particular billet.
2. A progression of responsibility.
3. Assignment to duty with Reserve components.
4. Assignment to duty with Joint or Allied staffs or with the Office of the Secretary of Defense.
5. Utilization of specialized training.

Many officers do not fully realize that they have primary responsibility for their own individual career planning. There are several ways to indicate preferences to the assignment section of the Bureau of Naval Personnel.

An Officer Preference and Personal Information Card is completed by all commissioned officers on initial appointment and upon recall to active duty. This card contains a wealth of information that is very useful to the detailing officer. It is construed as a current reflection of the individual officer's preferences, and its timely and accurate submission is extremely important.

Personal letters may be submitted if circumstances arise which are not appropriate for inclusion on the Preference Card. They are answered promptly whenever possible and the information is made a part of the detailing record and is acted upon if practicable. The letters do not become a part of the officer's permanent record. Amplifying information may also be submitted on a 5 x 7 card attached to the Preference Card. This procedure is recommended unless a reply is desired.

Officers desiring special courses of instruction, changes of duty, clarification of orders or date of release from active duty, extensions of duty in present assignment, transfer to or retention in the Regular Navy, extensions of active duty beyond expiration of obligated service, etc., should indicate this by a letter via the chain of command. Such letters

become a permanent part of an officer's record and are available for review within the Bureau of Naval Personnel.

When in the area of Washington, D.C., it is advisable for an officer to review his or her fitness report and correspondence jacket in the Bureau of Naval Personnel. It is also wise to visit the respective detail officer or corps sponsor to review and plan the officer's career, obtain the latest information concerning promotions, postgraduate instruction, etc., and exchange information of mutual benefit.

LINE OFFICER PATTERNS

The detailing of code 111X unrestricted line officers (figure 3-2) is directed toward qualifying them for surface warfare officers and command at sea.

Normally, a code 111X officer can expect sea duty on his first tour. This sea duty is usually in one of the three functional areas of operations, engineering, or weapons. The type of ship that he will serve on will be determined by a compromise between his personal preference and the current needs of the Operating Forces when he is detailed. He can expect to remain aboard ship for about 3 to 4 years. In general, he will remain in his first duty station about 1-1/2 years. If during this tour he qualifies for a more demanding billet, he probably will be reassigned to such a billet in another ship. Officers who have a basic 3-year obligation may remain in their initial duty assignment, be assigned to another ship or staff, or may be ordered to duty ashore. Depending on the particular situation, some may qualify early for command or an executive officer's billet aboard a small fleet unit, or for duty with an afloat staff.

At some time during the first operational phase, an officer may be ordered to a functional school to help him qualify for duty in a new functional area after he leaves his first ship and before he reports to the next one. This rotation, as has been pointed out, takes place after a period of 1-1/2 years. Normally he will rotate to a different type ship, perhaps from a destroyer to an amphibious type.

NAVAL ORIENTATION

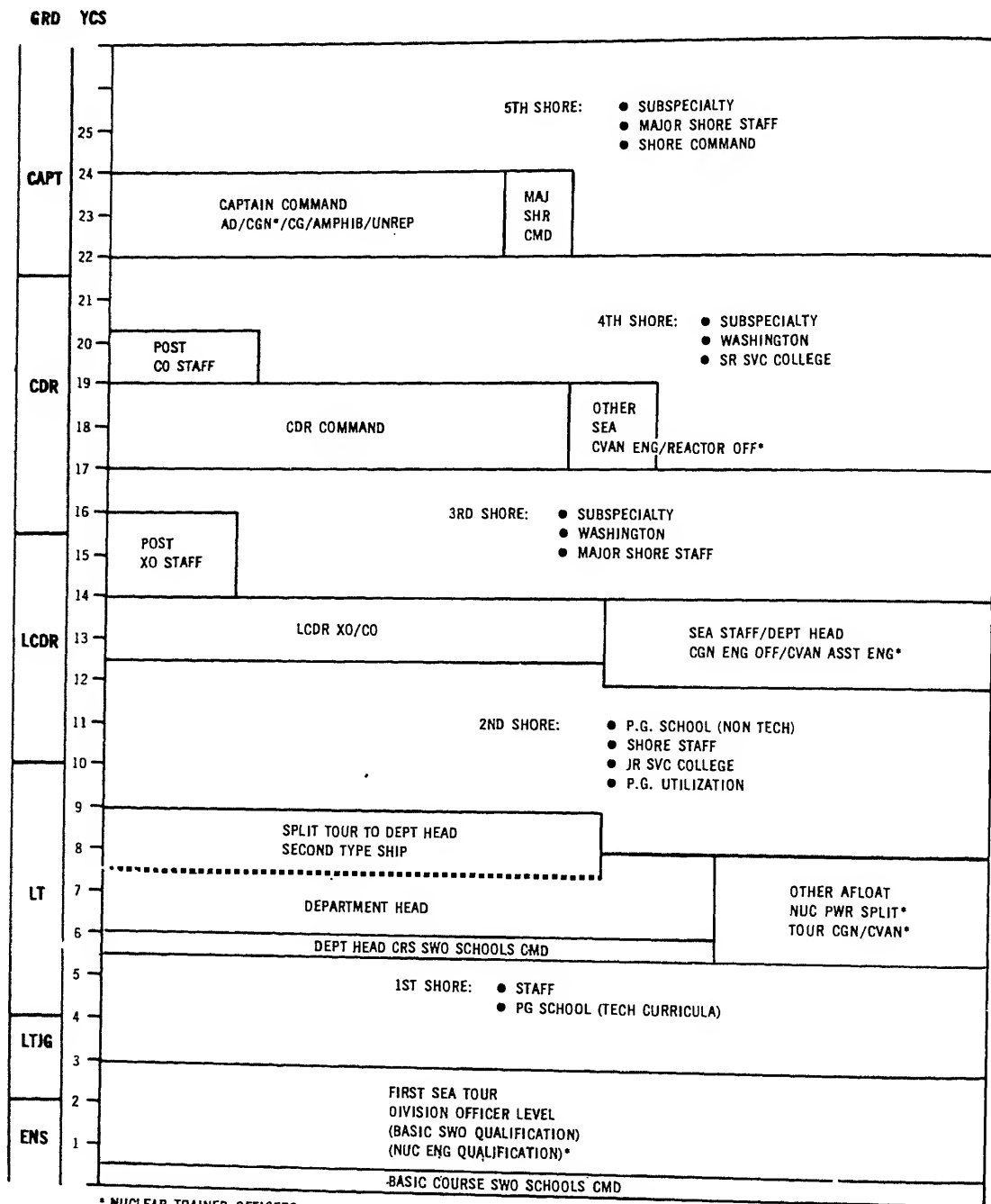


Figure 3-2.—Surface warfare officer professional development path.

At the completion of the first operational phase, a code 111X officer may be ordered to technical, non-technical, or professional education under the Navy's postgraduate educational program. This education normally is conducted at the Naval Postgraduate School, Monterey, California, although certain other courses are conducted at various selected civilian educational institutions. This is the first subspecialty and educational phase of an officer's development. The officer can expect orders to a shore billet which is allied with the training he has received when he next rotates ashore.

The subspecialty concept is an integral part of career development and was adopted to increase the depth of knowledge of unrestricted line officers in specific fields and to better utilize the abilities of those officers in meeting the needs of the Navy. Subspecialty is defined as a particular field of naval endeavor, other than the warfare specialty, or a significant qualification in one of these fields obtained through a combination of formal education, functional training, and practical experience. Broad areas of naval warfare and qualifications such as aviation and submarines are not considered subspecialties but as the unrestricted line officer's warfare specialty of naval warfare and command at sea. Subspecialty, therefore, can be further defined as a secondary career development field.

The second operational phase is a cruise of 2 to 3 years' duration. It may be a split tour, depending greatly on circumstances of the individual officer's career. The overall aim of this phase is to round out the officer's shipboard experience and qualifications by assignment at the department head level. Many officers will attend Surface Warfare School prior to this assignment.

The second subspecialty and/or educational phase follows this, and usually consists of a planning or policy position in the shore establishment. In some cases, postgraduate instruction is obtained during this tour.

After this comes the first advanced operational phase, the third subspecialty and/or educational phase, the second advanced

operational, subspecialty, and/or educational, etc., as indicated in figure 3-2. With each succeeding phase there will be more complex duties and a higher degree of responsibility, including at least one command at sea. In the final development phase some officers end their active careers and retire, while others go on to assume the responsibilities of flag rank.

For a code 112X officer qualified for submarine duty, the career pattern is somewhat different as seen in figure 3-3. After graduation from submarine school, he usually is ordered to an initial afloat unit tour. His subsequent assignment depends on current needs, but normally is another tour in a different submarine. He may then be ordered ashore for postgraduate instruction, administrative duties, or specialized instruction in advanced ordnance or nucleonics. The second tour of sea duty, if he is a diesel-electric officer, will likely be as third officer, with the aim of obtaining executive officer qualifications at the tour's end, whereas if he is a nuclear-trained officer, it will likely be as a nuclear submarine department head. After this is shore duty similar to the first advanced educational phase for surface officers. His next sea tour will likely be as commanding officer or executive officer, respectively, of a diesel-electric or nuclear submarine, as appropriate. If not returned to surface rotation after a tour as commanding officer, he possibly will have duty as a division and then squadron commander.

AVIATION PATTERN

Aviation assignment patterns are designed to give code 1310 officers necessary command qualification for aircraft units and those ships whose mission is primarily associated with aviation units. Sea and shore duty assignments are made as varied as possible to offer ample opportunity to develop the background necessary for eventual command assignments.

Figure 3-4 depicts a typical career pattern for aviation officers. Upon designation as naval aviators or flight officers, virtually all officers are assigned to fleet operational squadrons for a 2-1/2 year tour. This tour is a critical period of

DIESEL		
GRADE	YRS	ASSIGNMENT AREAS
		SUB SCHOOL
ENS	1	
	2	DIVISION OFFICER SS
	3	
LTJG	4	DEPT HEAD SS
	5	PG SCHOOL (ASW)
	6	SHORE STAFF
	7	
LT	8	3RD OFFICER SS
	9	
	10	XO SS
	11	PG SCHOOL JR SVC COLLEGE STAFF SUBSPECIALTY (SOSUS OPS)
	12	
LCDR	13	CO SS
	14	
	15	WASHINGTON
	16	FLEET STAFF
	17	MAJOR PROJECT SUPPORT
	18	SUBSPECIALTY (SOSUS C.O.)
CDR	19	SR SVC COLLEGE
	20	MAJOR SHORE STAFF
	21	
	22	CAPTAIN COMMAND
	23	
CAPT	24	SHORE
	25	

NUCLEAR		
GRADE	YRS	ASSIGNMENT AREAS
		NUCLEAR POWER TRAINING
ENS	1	
	2	
	3	
LTJG	4	SOAC
	5	
	6	PG SCHOOL
	7	SHORE/STAFF
LT	8	DEPT. HEAD
	9	
	10	JR SVC/COLLEGE STAFF/SHORE
	11	PG SCHOOL SUBSPECIALTY
	12	
LCDR	13	XO
	14	PG EDUCATION STAFF
	15	WASHINGTON SUBSPECIALTY
	16	PCO
	17	
	18	CO
CDR	19	
	20	
	21	SR SVC COLLEGE
	22	MAJOR PROJECT SUPPORT
	23	SUBSPECIALTY
	24	FLEET STAFF
	25	WASHINGTON
		MAJOR SHORE STAFF

Figure 3-3.—Typical professional development pattern for submarine warfare officers.

134.181

development since during it the young officer develops his reputation as a professional, highly skilled, operational naval aviation officer.

Aviation officers coming ashore after their initial sea duty normally are serving in the grade of lieutenant. Most are assigned to flying duties in a carrier replacement air wing (CRAW) or training command squadron. The remainder are assigned to duties in the aviation shore establishment. For a certain percentage of officers, the first shore tour includes undergraduate or postgraduate education.

The second sea tour is approximately 2-1/2 years, in a squadron, ship, staff, or overseas assignment.

About a third of the officers rotating ashore after the second sea tour are ordered to flying billets, the remainder being assigned to various shore activities. Officers with previous postgraduate training may anticipate duty appropriate thereto. Postgraduate training may be made available to those who did not receive it during their first tour.

The operational command development and advanced phases entail squadron and air group command, deep draft command, attendance at service colleges, assignments to Joint and combined staffs, and duties in the Navy Department and other governmental activities. The assignments in this phase are dependent

Chapter 3—THE NAVAL OFFICER'S CAREER

upon career needs and qualifications of the individuals, and the needs of the service.






STAFF CORPS OFFICERS PATTERN

For officers of the staff corps, a regular alternation between sea and shore cannot always be effected. The normal assignment and rotation sequence may be modified by exigencies of the service and the necessity to equalize the character of total service performed by officers of the same grades.

Our discussion of the typical staff rotation pattern is confined to the Supply Corps. The SC career development program (figure 3-5) is considered fairly typical of assignment and rotation patterns for officers of all the staff corps. The program is established to develop proficiency in the administration of supply operations afloat and shore, and also in one or more of the functional areas of financial

management, clothing and textiles, fuel distribution, merchandising, procurement, food service, system inventory management, and transportation management. Because it is necessary to have a continuous input of officers into various functional proficiency areas to replace normal losses, there is always ample opportunity for new officers to enter these fields. The usual procedure is for the officer to indicate choice upon promotion to lieutenant, the preference being considered in making duty assignments thereafter.

Ensigns and lieutenants junior grade follow a sequence of assignments aimed at giving them a broad basic training. In the grades of lieutenant and lieutenant commander, emphasis is on technical development in supply and fiscal matters and in the functional specialty. Every effort is made to divide equally the time spent in assignments between the two areas. In the grades of commander and captain, assignments are to positions of greater responsibility, including senior staff and commanding officer billets.

GRADE	YRS	PERIOD	PHASE		ASSIGNMENT AREAS
 ENS	1	FUNDAMENTAL PROFESSIONAL DEVELOPMENT	SHORE		TRAINING COMMAND
 LTJG	2		SEA	1ST OPERATIONAL PERIOD	OPERATIONAL SQUADRON DIVISION OFFICER ASSISTANT DEPARTMENT HEAD
	3				
	4		SHORE	PROFESSIONAL AND TECHNICAL EDUCATION	TRAINING COMMAND/REPLACEMENT SQUADRON /OPERATIONAL SQUADRON BS/BA COLLEGE PROGRAM POST GRADUATE SCHOOL TEST PILOT/WASH DUTY
 LT	5				
	6				
	7				
	8		SEA	2ND OPERATIONAL PERIOD	OPERATIONAL SQUADRON { SHIP/STAFF OVERSEAS BASE
	9				
 LCDR	10				
	11	INTERMEDIATE PROFESSIONAL DEVELOPMENT	SHORE	ADVANCED EDUCATION	TRAINING COMMAND NAVAL AIR STATION POSTGRADUATE SCHOOL NAVY DEPARTMENT JUNIOR SERVICE COLLEGE
	12				
 CDR	13		SEA AND SHORE	OPERATIONAL COMMAND DEVELOPMENT	SEA SHIP STAFF EXECUTIVE OFFICER COMMANDING OFFICER SHORE AIR GROUP COMMANDER NAVAL AIR STATION NAVY DEPARTMENT
	14				
	15				
	16				
	17				
	18				
	19				
	20				

WOMEN OFFICERS' PATTERN

For the majority of Unrestricted Line (URL) women officers a Navy career does not encompass association with a warfare specialty. But with legislative change—anticipated in the not too distant future—URL women officers will be competing with warfare specialists for promotions. Consequently, in order for the woman officer to remain promotionally competitive, her successive assignments should progress through levels of responsibility and authority which are essentially equivalent to those experienced by warfare specialists (figure 3-6).

EDUCATION

Any career Navy officer who, after being commissioned, feels that the academic life is over is sadly mistaken. Formal education is a

recurring part of the entire career, and the use the officer makes of it determines to a great measure success of a naval officer.

There are two primary reasons behind the importance that the Navy puts on formal officer education. First of all, the overall mission of the Navy, and the “hardware” necessary for this mission, have increased tremendously in scope and complexity. The people primarily responsible for this mission must be thoroughly trained. The second—and equally important—reason lies in the fact that the eventual aim of every career officer is to command. Succession to command presumes a sound knowledge of the operations of the unit to be commanded.

IN-SERVICE TRAINING

It is difficult to acquire that knowledge without the benefit of specialized, formal training. This is not the only training that is necessary but it is an invaluable starting point. It






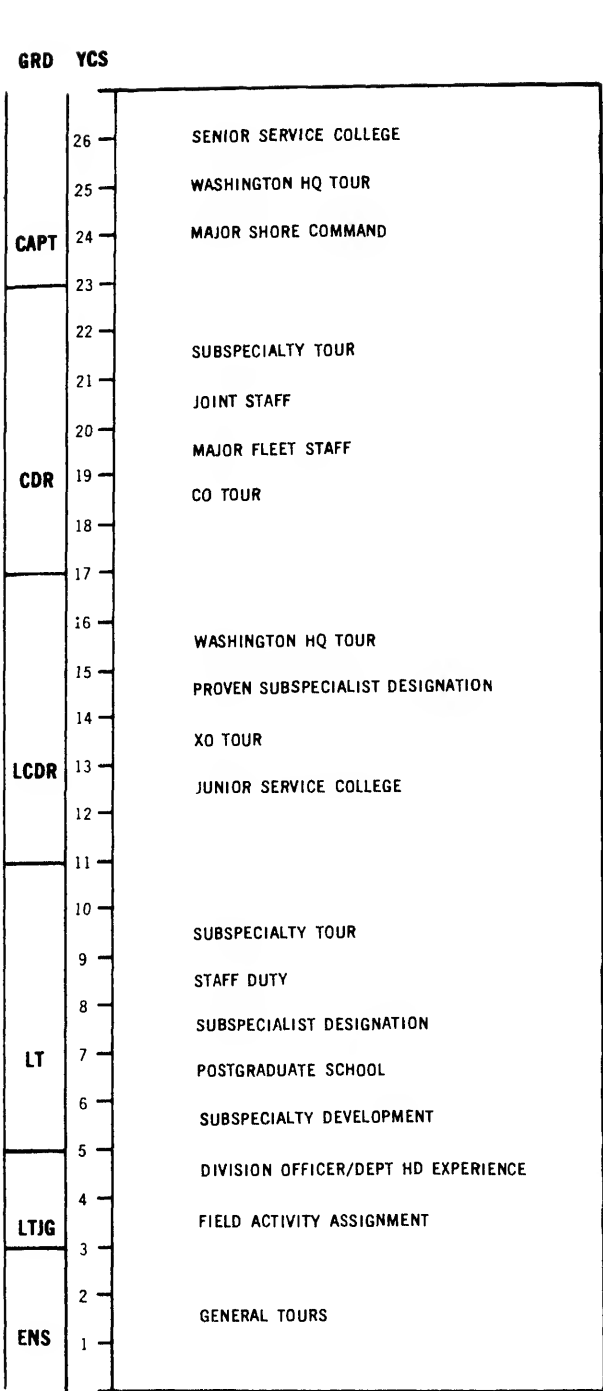
GRADE	YRS	PERIOD	PHASE	SEA	CONTINENTAL UNITED STATES	OVERSEAS
	1	BASIC DEVELOPMENT	1ST OPERATIONAL	6 MOS-NAVAL SUPPLY CORPS SCHOOL		
ENS	2			INDEPENDENT OR DEPENDENT DUTY AFLOAT		
	3		2ND OPERATIONAL		FUNCTIONAL TRAINING IF REQUIRED	
LTJG	4					
	5	FUNCTIONAL DEVELOPMENT	3RD OPERATIONAL	INDEPENDENT OR DEPENDENT DUTY AFLOAT		ASSISTANT SUPPLY OR FISCAL OFFICER
LT	6					
	7		1ST OPERATIONAL OR EDUCATIONAL		GENERAL SUPPLY OR SPECIFIC FUNCTIONAL MANAGEMENT ASHORE POST GRADUATE EDUCATION	
	8					
	9		2ND OPERATIONAL OR EDUCATIONAL	SUPPLY OFFICER OF SHIP OR AFLOAT STAFF		SUPPLY OR FISCAL OFFICER ASSISTANT
	10					
	11		3RD OPERATIONAL OR EDUCATIONAL		GENERAL SUPPLY AND FISCAL FUNCTIONAL TOUR P.G. EDUCATION	
	12					
	13	COMMAND AND MANAGEMENT	1ST OPERATIONAL	SUPPLY OFFICER OF LARGE SHIP		SUPPLY/FISCAL DEPARTMENT HEAD OR FLEET STAFFS
	14					
	15		2ND OPERATIONAL OR EDUCATIONAL		LARGE SUPPLY ACTIVITY DEPARTMENT HEAD SERVICE COLLEGE	
	16					
CDR	17					
	18					
	19					
	20					

Figure 3-5.—Typical professional development pattern for supply corps officers.



134.182
 Figure 3-6.—Woman officer professional development path.

lays the foundation that will be broadened and expanded with the knowledge gained from on-the-job experience.

The *Catalog of Navy Training Courses* (CANTRAC), NAVEDTRA 10500, contains a complete list of instruction provided for officers and enlisted personnel by the Chief of Naval Education and Training. In general, there are three types of courses:

1. Officer professional courses are designed for general professional development, included, for example, are the Command and Staff Course conducted at the Naval War College, Newport, R.I., and Defense Language Institute courses held in Monterey, California.
2. Officer skill courses that train an officer for, or enhance his capability in, some skill or specialty. This category includes all courses of instruction not considered professional in nature.
3. Enlisted skill courses, which are similar in purpose to officer skill courses.

Functional Training

Functional training comprises those schools that provide training to both enlisted personnel and officers in the performance of specialized tasks or functions which, in general, are not normal to rating training of enlisted members or professional training of officers. Types of functional programs are:

1. Submarine and nuclear power training, including training on missiles launchable from submarines and surface ships.
2. Fleet schools ashore. These principally provide training on antisubmarine and antiaircraft weapons, other shipboard weapons, and amphibious and other operations.
3. Specialized training in such areas as harbor defense, mine warfare, mobilization coordination, damage control, firefighting, and cold weather operations.

Staff Corps Training

All newly commissioned Supply Corps officers are ordered to the Navy Supply Corps School, Athens, Georgia where they undergo a

6-month Basic Qualification Course. To prepare for or supplement on-the-job experience, a number of relatively short functional training courses are available. These include, among others, contract administration, food service supervision, property disposal, and commissary and Navy Exchange management.

The professional education and training of Medical Department personnel is a responsibility of the Chief of the Bureau of Medicine and Surgery. All Medical, Dental, and Nurse Corps officers, and certain officers of the Medical Service Corps, acquire formal academic and professional backgrounds at college and professional schools before entering on active duty. In-service training is provided to increase their professional growth and further their specialty and subspecialty development.

Catholic, Protestant, and Jewish clergymen who comprise the Navy Chaplain Corps are not commissioned until they have completed college and seminary training. After about 5 years of commissioned service, a chaplain may apply for and, upon selection, be assigned to 1 academic year of postgraduate training in a recognized theological institution. To further their professional competence, many chaplains take advantage of educational resources in the areas in which they are stationed.

Normally, Civil Engineer Corps officers are graduates of accredited institutions in one of the engineering fields such as civil, nuclear, electrical, architectural, or construction. All newly commissioned CEC officers attend the CEC Officer School, Port Hueneme, Calif. Also available at that school are courses in public works, construction engineering, atomic defense, disaster engineering, and others.

Members of the Judge Advocate General's Corps commissioned after they have become accredited members of the bar are ordered to Newport, R.I., where they receive 6 weeks of officer indoctrination plus 8 weeks of training at the Naval Justice School. Active duty officers may be selected to attend law school in accordance with SECNAVINST 1520.7, and then become JAGC officers.

Aviation and Submarine Training

Selections of officers for flight training are made by the Chief of Naval Personnel from officers who make application and who are physically qualified. Detailed information concerning eligibility requirements and application procedures for flight training is published in the Navy Directives System.

Instructions for requesting submarine training are issued in the Bureau of Naval Personnel Manual.

Each application must be accompanied by a statement from a medical officer that the applicant is physically qualified in accordance with existing instructions of the Bureau of Medicine and Surgery. Officers selected are issued permanent duty orders. Classes assemble at the Submarine Base, New London, Conn.

FORMAL EDUCATION

In addition to training in areas of particular naval interest, the Navy's officer-education program embraces many formal academic courses of instruction. Every officer is afforded opportunities to grow professionally in order to assume progressively broader responsibilities.

Undergraduate Education

The goal of the College Degree Program is to raise the educational level of certain officers not holding baccalaureate degrees, thus increasing the number of persons that may qualify for graduate education.

Although many officers voluntarily continue their academic education during off-duty hours, they are unable to qualify for a degree because most colleges and universities require that the last academic year (about 30 semester hours) be completed in residence. The College Degree Program attempts to fill the need of some of those so handicapped. The program is available to eligible warrant and commissioned officers (except Medical Corps and Nurse Corps) through the grade of captain who have earned sufficient

credits to make it possible for them to obtain a baccalaureate degree in a period not to exceed 18 consecutive months through full-time study at a civilian educational institution. Individual applications are required; those chosen by selection board are responsible for gaining admission to the school of their choice. Officers participating in the program receive regular pay and allowances, and bear the full cost of tuition and other school expenses. Procedures for applying are contained in CNETINST 1520.4 series.

Postgraduate Education

The goal of the Navy postgraduate educational program is to meet billet requirements by providing necessary postgraduate education for qualified active duty officers. The program is designed to capitalize upon the individual officer's abilities and potential by extension of studies to include specialized areas, and to equip some officers with postgraduate education at the master's and doctor's degree level, in both technical and nontechnical fields of study.

NAVAL POSTGRADUATE SCHOOL.—The NPS conducts for the Chief of Naval Education and Training the on-duty postgraduate education of naval officers (except for appropriate curricula provided by other department of Defense components). Some officers study at civilian universities such as the University of California or Massachusetts Institute of Technology for highly advanced technical study.

NPS offers advanced technical curricula in such diverse fields as aeronautics, communications, electronics, data processing, weapons engineering, and operations analysis. An engineering science curriculum offers basic preparatory programs according to the educational backgrounds of officers attending. A 2-year nontechnical naval management curriculum is designed to improve students' capabilities for organizing and directing activities in which resources of men, money, and materials are combined to accomplish Navy objectives.

Those who meet the criteria for postgraduate education at NPS are, for the most

part, limited to obtaining a master's (MA or MS) degree. Further education ending in a doctoral degree is available only to exceptionally competent officers.

SERVICE COLLEGES OF THE ARMED FORCES.—Many professional courses are available for the mid-career and senior officers through the Naval War College; Joint colleges, such as the National War College and Industrial College of the Armed Forces; and various staff colleges and senior officer courses of the other services. Each service has at least one "think tank," and each may be attended by a limited number of officers from the sister services. A common purpose of the colleges is to prepare officers for major tactical command, Joint and combined staffs, and for policy-making billets in the shore establishment.

There are two levels of study available at the various service colleges: (1) The "Operation, Staff, and Command" courses that prepare mid-career officers (in general, LCDR and CDR) for the exercise of command and staff duties; and (2) The senior college courses, largely a continuation of (1), that provide CDRs and CAPTs with a review of essentials in the exercise of command and a study of advanced phases of strategic warfare, management and tactics.

Eligible officers are automatically considered for selection for one of the service colleges as they become available. Eligibility criteria vary according to designator, and availability for the assignment depends on planned rotation. Eligible year groups are screened in their entirety by the annual Service Colleges Selection Board prior to the 10th, 16th, and 21st years of commissioned service. The 10th year of service marks selection for junior colleges, for attendance during the 10-16th years. The 16th year point is the initial selection for senior colleges during the 16th-20th years. The 21st-year point is the final selection for attendance at a senior college during the 21st-25th years.

The selection board regards all junior and senior colleges equally; that is, selectees may be ordered to any college appropriate to their year group.

SPECIAL POSTGRADUATE PROGRAM.—

Separate and apart from the Navy's regular postgraduate educational program is a special program for a limited number of highly qualified junior officers. The Junior Line Officer Advanced Educational (better known as Burke) Program provides master-degree-level education to the majority of selected students. Candidates for the program are selected during their senior midshipman year at the Naval Academy or in the NROTC program. The Burke Program involves an operational sea tour of 2 years before commencing graduate work.

DOD-SPONSORED PROGRAM.—The Department of Defense sponsors the Defense Intelligence School curriculum.

The Defense Intelligence curriculum provides instruction in basic principles and techniques of intelligence operations. Upon graduation, qualified officers may continue their instruction in a foreign language and area study program at the Defense Language Institute.

SCHOLARSHIP PROGRAM.—Under Public Law 87-555 (passed in July 1962), selected personnel may request permission to accept academic honors conferred by scholarships, fellowships, and grants including, with certain restrictions, associated financial benefits. Approval to accept such an honor is based on needs of the service, and a successful candidate is ordered to the appropriate school or activity in an active duty status. Procedures for applying are contained in SECNAVINST 1500.4 series.

CORRESPONDENCE COURSES

Correspondence courses were first used as a method of instruction in 1914 and have increased in number and scope since that time. They have achieved full recognition as an effective method of instruction and offer certain unique advantages:

1. The student gets instruction that may not be available through other means. However remote he may be from training facilities, correspondence courses are still available to him.

2. Correspondence courses can be fitted easily into a busy work schedule.

3. The student can set his own pace. If he doesn't understand a lesson completely, he is under no pressure to go on until he does understand.

4. The student can plan his course of study systematically, avoiding last minute cramming.

5. Active duty personnel engaged in a particular technical field can study theory and principles and utilize them by practical application. In this sense, correspondence courses provide a good blend of the theoretical and practical.

In addition, officer correspondence courses are an important part of an officer's education. Courses are available from seven main sources: (1) Naval Education and Training Program Development Center (2) Naval Security Group, (3) Defense Intelligence School, (4) Naval War College, (5) Naval Medical School, (6) Naval Dental School, and (7) The Industrial College of the Armed Forces.

NAVY CAMPUS FOR ACHIEVEMENT (NCFA)

All off-duty education programs are centralized under the Navy Campus For Achievement. Officially implemented in March 1973, the Navy Campus For Achievement brings coordination, structure, and financial management to such programs as Tuition Assistance, the Program for Afloat College Education (PACE), and Instructor Hire. In the past, these programs had been separately administered. A College Degree Component is also available through the NCFA management system.

The Navy Campus For Achievement also makes non-Navy funded programs available to Navy personnel, such as the services of the Defense Activity for Nontraditional Education Support (DANTES), the Predischarge Education Program (PREP), the In-service G.I. Bill, and the Servicemen's Opportunity College.

Educational Advisors

The backbone of the Navy Campus For Achievement is a network of civilian professional Educational Advisors. These

Educational Advisors are located or available in all areas of Navy personnel concentration. They provide educational counseling services to individual Navy personnel in person or by telephone or letter. For shipboard personnel, Educational Advisors are available at all large homeports.

NCFA Educational Advisors also provide advice and assistance to commanding officers regarding off-duty educational programs on base or station and aboard ship. They maintain contact with civilian educational institutions attended by Navy personnel. Broadly speaking, NCFA Educational Advisors are the experts on all of the programs under the management umbrella of the Navy Campus For Achievement and associated with off-duty education. They render advice and assistance to Career Counselors and Educational Services Officers and act upon referrals from the latter on educational matters.

Servicemen's Opportunity College (SOC)

The Servicemen's Opportunity College (SOC) is a group of approximately 270 two-year and four-year institutions of higher learning that are pledged to follow general criteria in support of college educational opportunities for service personnel. These criteria include the adoption of liberal entrance requirements, reduced residency for degrees, generous credit transfer, maximum recognition of educational experiences obtained in the armed services, and the expansion of nontraditional educational delivery systems.

NCFA Educational Advisors will assist a Navy member in locating the nearest and most appropriate SOC institution. Unfortunately, many SOC institutions are not in proximity to Navy bases and stations and, of course, are not available to seagoing personnel. In addition, the SOC criteria mentioned above are interpreted differently by SOC institutions, particularly "reduced residency." While the Navy Campus For Achievement supports the concept of SOC and urges its use, it should be recognized that many Navy personnel need a more definite commitment from a college or university than is

offered by many SOC institutions. In response to very special academic needs of many Navy personnel, the Navy Campus For Achievement has asked SOC institutions in several specific locations to define SOC criteria more exactly for the benefit of Navy personnel. These special SOC institutions constitute the NCFA degree component.

NCFA Degree Component

The degree component of the NCFA enables Navy personnel to obtain college degrees or certificates during off-duty hours. Frequent transfers and tours at sea were not compatible with academic accomplishment until the advent of the NCFA degree component.

The Navy Campus For Achievement has agreements with a number of civilian colleges and universities to eliminate the roadblocks that have always hampered a Navy man or woman from earning a college degree or certificate. NCFA degree-component colleges and universities have recognized the academic plight of the Navy man or woman. They are all located near Navy bases and stations and subscribe to the following conditions:

- a. To accept all credits earned at other regionally accredited institutions which are applicable to the academic major of the Navy student.
- b. To eliminate residency as a requirement for a degree or certificate.
- c. To maintain a transcript on the Navy student even if he or she is not in residence.
- d. To accept up to 75% of the requirements for a degree or certificate from nontraditional sources; for example, the College Level Examination Program (CLEP), the service school credit recommendations of the American Council on Education, validated work experience, correspondence courses offered by accredited colleges and universities, extension courses offered by accredited colleges and universities, etc.

Any Navy man or woman who wants to take advantage of the NCFA degree component need

only contact an NCFA Educational Advisor, either individually or through his educational services officer or career counselor. The NCFA Educational Advisor will study the individual's work and school record and will suggest a program and an NCFA degree component institution. The NCFA Educational Advisor will then bring the Navy student and the institution together as parties to an "NCFA letter of agreement." This letter of agreement is an academic contract between the institution and the Navy student.

Specifically, the NCFA letter of agreement is a two-part instrument. Part I sets forth the standard conditions mentioned above. The Navy student agrees to pay a one-time fee for the letter of agreement and a small annual fee for maintaining the transcript when he is not in residence.

Part II of the letter of agreement documents the accepted credits earned by the Navy student prior to the date of the letter and specifies those courses which must be completed at any accredited institution before a degree or certificate is granted. If the Navy student is transferred, the parent institution agrees to accept comparable courses completed at other accredited institutions on the basis of prior approval. When the course requirements specified in Part II of the letter of agreement have been met, the parent institution grants the degree or certificate. It is possible for a Navy student to earn a degree or certificate without ever setting foot on the campus of the institution with which he has entered into an NCFA letter of agreement.

Tuition Assistance

To help Navy students realize their educational ambitions during off-duty time, the Navy Campus For Achievement may pay up to 75% of tuition costs.

Before tuition assistance is approved, the institution that the Navy student wishes to attend must be accredited. Courses and programs that have been planned with the guidance and cooperation of an NCFA Educational Advisor are assured of making the

best use of available tuition assistance money and are assured of supporting the Navy's needs. A Navy student who has entered into an NCFA letter of agreement with an NCFA degree-component institution is assured of a planned program and of consideration for tuition assistance.

Tuition assistance, however, is not limited to college courses and programs. A Navy man or woman who is motivated for vocational, technical, or trade courses may receive tuition assistance if the course supports his current rating or Navy Enlisted Classification, fills a current Navy need, or meets his career aspirations.

Although the Navy Campus For Achievement may provide tuition assistance up to a maximum of 75% of tuition, there are course-load limitations. If the course is for college credit, the Navy student is limited to 10 academic hours per semester or its quarter-hour equivalent. If a vocational, technical, or trade course, the Navy student is limited to 15 clock hours per week or 270 clock hours per 18-week course increment.

Officers are required to remain on active duty for 2 years following completion of a course for which they accept tuition assistance. Enlisted personnel must have sufficient time remaining in their enlistments to complete courses for which tuition assistance has been requested.

Program for Afloat College Education (PACE)

The Navy Campus For Achievement also provides a shipboard education program for college credit. In this program, called the Program for Afloat College Education (PACE), the Navy student assigned to a ship pays only for his books, supplies, and an occasional enrollment fee out of his own pocket. The Navy Campus For Achievement pays the entire cost of the tuition.

PACE courses are taught by seagoing professors. These college-level professors have been certified as faculty members of an

accredited institution of higher learning with which the Navy Campus For Achievement has a contract. By the terms of the contract with the Navy, the instructor is required to be present for a specific number of hours during each course.

If 10 or more personnel aboard ship need a specific course to fulfill an educational objective, the commanding officer can request, with the assistance of an NCFA Educational Advisor, the assignment of a PACE instructor.

In-Service G.I. Bill

Personnel on active duty before the end of fiscal year 1976 may also defray the cost of their off-duty education by using the in-service provisions of the Veterans Readjustment Assistance Act (commonly called the G.I. Bill). The in-service benefits of the G.I. Bill provide educational assistance to servicemen who have been on active duty for more than 180 days.

While on active duty, a serviceman has earned educational benefits at the rate of 1-1/2 months of education for each month of service up to a maximum of 36 months. When a serviceman attends an institution on a part-time basis during off-duty time, the expenditure of this entitlement would be scaled down accordingly. For example, if a member enrolled in one 3-semester-hour course, he would be charged for only 1, rather than 4, educational months of his entitlement. Accordingly, he would receive only one-fourth of the maximum monthly compensation or an amount sufficient to pay his tuition, whichever is less. A serviceman receives no in-service G.I. Bill compensation for dependents.

Educational assistance under the in-service provisions of the G.I. Bill has certain advantages over the Navy Tuition Assistance Program. Unlike the latter, it is a specific entitlement not subject to budgetary fluctuations. Further, it is available for a wider range of courses, including vocational correspondence courses.

Instructor Hire

The Navy Campus For Achievement also provides funds and assistance to commanding

officers for an Instructor Hire Program. The Instructor Hire Program is designed to provide a commanding officer with the means to hire a civilian instructor for teaching any subject which is of legitimate interest to 10 or more personnel of the command. Courses may be conducted at the high school, college, or technical school level.

In the past, the Instructor Hire Program has been used to prepare Navy personnel for equivalency examinations at the high school and college levels. Commanding officers have used the Instructor Hire Program to offer native language courses in overseas locations. The Instructor Hire Program has been used to offer courses in speedreading and for instruction in English writing and reading for those for whom English is a second language.

Defense Activity For Nontraditional Education Support (DANTES)

Through NCFA Educational Advisors, the services of DANTES are made available to Navy personnel. DANTES provides high school equivalency tests free of charge to overseas personnel and to most seagoing personnel. NCFA Educational Advisors and designated educational services officers may also obtain CLEP (College Level Examination Program) tests from DANTES for free-of-charge administration to Navy personnel. CLEP tests are widely used to earn college credit in lieu of classroom study. NCFA Educational Advisors also make wide use of a special catalog prepared by DANTES which outlines many self-study opportunities at the college, high school, and vocational-technical levels.

The educational programs offered by the Navy are constantly changing as the need for these programs change. Up-to-date information on the current programs can be obtained from the enlisted Navy counselor.

PAY AND ALLOWANCES

Two general statements can safely be made about military pay. Few, if any, people become

wealthy on the basis of their military pay alone. On the other hand, if budgeted wisely, military pay provides a comfortable standard of living.

From a career standpoint, there are certain factors to keep in mind when making dollar-for-dollar comparisons of military and civilian pay. Military pay is guaranteed and predictable. The current trend in military pay is upward. It should be pointed out that periods of business recession do not adversely affect military pay.

A portion of the total military pay is not taxable, and provisions are made for additional pay for various forms of special or hazardous duty.

Many publications contain descriptions of the entire matter of military pay. Our purpose here is to give an overview and to define and briefly discuss elements that compose the total pay structure.

Commissioned officers and warrant officers are assigned by law to pay grades on the basis of the grades in which they are serving, whether under temporary or permanent appointment. Enlisted personnel, on the other hand, are assigned to pay grades by the Secretary of the Navy.

BASIC, SPECIAL, AND INCENTIVE PAY

Basic pay, which accrues for all personnel on the basis of pay grade and cumulative years of service, is the major portion of a person's total pay. The cumulative years of service may have been in any branch of the armed service or their Reserve components.

Special pay is added compensation received for performing special duties. For officers, "special duty" is limited to medical and dental billets, and duties involving diving and coming under hostile fire. Special pay for doctors and dentists is prorated on the number of years they have been on active duty (although there is also a Special Continuation Pay for certain medical officers serving in critical specialties). Hostile fire pay and diving pay involve flat monthly sums regardless of grade or years of service. As a matter of interest, hostile fire pay is not payable in time of war declared by Congress.

Incentive pay, prorated according to grade and years of service, is additional pay received for performing hazardous duty. Included in this category are flight pay for both crew and noncrew members, submarine pay, and extra pay received for parachute, aircraft carrier flight deck, explosive demolition, experimental stress, and leprosarium duty.

ALLOWANCES

An allowance is a contribution or its equivalent "in kind" to help meet expenses incurred as the result of membership in the naval service.

Subsistence

An officer is entitled to a monthly allowance for subsistence without regard to grade or dependency status. All officers, whether on board ship or ashore, whether married or single, receive a subsistence allowance and pay their own mess bills.

Quarters

An officer without dependents receives a quarters allowance except when Government quarters are available. Consequently, if he is assigned to duty at sea, or to a station where bachelor officer quarters (BOQ) are available, he does not receive a quarters allowance.

An officer with dependents is allowed a quarters allowance regardless of whether he is serving ashore, at sea, or overseas, unless Government quarters have been provided for him and his dependents.

Dislocation

Men with dependents are allowed dislocation pay upon a permanent change of station. It is paid to help defray the abnormal expenses incurred in such a move. The amount is equal to 1 month's basic allowance for quarters to which the person is entitled.

Miscellaneous

There are additional allowances paid for such things as initial uniform allowance, mileage expenses in traveling under orders, and per diem payments for temporary additional duty. Their specifications differ, but the basic idea is the same: a temporary payment to help defray expenses of an unusual nature arising from official duty.

BENEFITS

From the commencement of active duty, a naval officer is entitled to many valuable benefits. Those considered traditional include medical and dental care, exchange and commissary privileges, various assistance programs, and retirement, among others. It is estimated that benefits add about 15% to an individual's pay.

MEDICAL AND DENTAL CARE

Medical and dental care are available to all members of the armed services on active duty. Regardless of where an individual is stationed, there is immediate access to full and complete care through the facilities of all the Armed Forces and the Public Health Service.

The Navy naturally is vitally concerned with the health of its members. It establishes physical qualifications for procurement and ensures the maintenance of these standards throughout the entire period of active service. There are additional physical qualifications for aviation, submarine duty, and other special programs. The rigors of a career in the Navy cannot be withstood by a person in subpar physical condition. Should a person become injured or ill while on active duty, however, it is obviously in the person's best interest as well as the Navy's to restore the individual to health as soon as possible.

Regulations governing medical care for retirees and dependents are contained in SECNAV Instruction 6320.8 series, which represents a joint statement by the Armed

Forces, Coast Guard, and Public Health Service. The regulations prescribe policies and procedures for administering the Uniformed Services Health Benefits Program (previously known as Medicare) as authorized by Title 10, U.S. Code, for all the uniformed services.

The law provides a uniform level of care, through either military or civilian facilities, for (1) retired personnel, (2) dependents of both active duty and retired members, and (3) dependents of deceased members who died while on active duty or retired. Retired persons are entitled to the same health benefits in uniformed services facilities as active duty members, subject to space availability and staff capabilities. (The Veterans Administration, however, is responsible for the hospitalization, for certain chronic conditions, of persons retired for physical disability.) Exceptions to entitlement of medical care for dependents are few, being concerned mainly with dental care, domiciliary or custodial care, prosthetic devices, hearing aids, spectacles, and orthopedic footwear. Medical services at uniformed services facilities may be provided to dependents, subject to space availability and capabilities of the professional staff.

In general, retirees and all dependents should use service medical facilities, if they are available and adequate as determined by the commanding officer of the appropriate facility. An integral part of the Health Benefits Program, however, is the Civilian Health and Medical Program of the Uniformed Services (CHAMPUS). This aspect of medical care is of particular benefit to eligible beneficiaries residing in areas where service medical facilities are unavailable or unable to accommodate them. Under CHAMPUS, a wide range of civilian health care services is authorized with a significant share of the cost being paid by the Government.

Participation in CHAMPUS by sources of care is entirely voluntary. Beneficiaries desiring treatment or hospitalization under CHAMPUS must locate a "participating" physician or other source of health care willing to provide authorized care to the beneficiary and, after payment of a stipulated amount by the beneficiary, submit a claim to the proper

Government fiscal agent for payment of the remainder of the fee, and accepting the amount the Government determines to be allowable for the services.

Inherent in CHAMPUS is a "reasonable fee" concept, meaning that the Government will pay only those charges it determines to be reasonable. If a fee charged is considered unreasonable, the difference between the fee for treatment and the amount paid under CHAMPUS will have to be borne by the beneficiary. This can be costly if not understood. There have been instances when beneficiaries thought the Government would pay the full charge made by ANY civilian source for authorized health care. If treated by a nonparticipating party, however, the patient must pay the bill for any extra money charged. The patient should always ask, at the time of the initial visit, whether the physician or hospital participates in CHAMPUS and will accept (after the patient's contribution) the Government fee as payment in full. Claims submitted to the Government by participating parties include an agreement to accept as full payment the amount authorized as payable under the program.

Except for emergency care, hospitals that practice discrimination in the admission or treatment of patients on the basis of race, color, or national origin may not participate in CHAMPUS. In other words, the Government won't pay for their services, and beneficiaries receiving treatment at those institutions will foot the entire bill.

Unless it is required as a necessary adjunct to medical or surgical treatment payable under CHAMPUS, dental care is not authorized at a civilian source (that is, if received the recipient pays for it).

Routine dental care for dependents is authorized at uniformed service facilities outside the United States. Within the United States, it is authorized only at specifically designated installations located in remote areas. Emergency dental care is available worldwide, as in any dental care considered necessary in connection with medical or surgical treatment.

COMMISSARY AND EXCHANGE PRIVILEGES

One feature of Navy life that a service dependent will especially appreciate is the privilege of purchasing food, household, and personal items at reasonable cost through commissaries and service exchanges. Wherever stationed, these Government facilities permit service personnel and their dependents to purchase basic commodities at fair prices.

In overseas branches of those activities, one may buy foodstuffs and exchange items that otherwise might not be available. Many commodities ordinarily obtainable overseas through other means carry a much higher price tag. In addition, particularly for foreign goods or unfamiliar brands, the exchange ensures good quality. Their buyers are experts; most of us are not. Exchanges and commissaries base their prices on the same price scale used by their stateside counterparts.

The extent and type of items carried in commissaries and exchanges in overseas facilities are usually described in considerable detail in the Information on Living Conditions pamphlets issued by the Bureau of Naval Personnel.

DEPENDENT SCHOOLING

Elementary and secondary schooling is available overseas at Government expense for eligible minor dependents of Department of Defense (military and civilian) personnel. To be eligible, a dependent must be between the ages of 5 and 20, must be authorized by competent authority to be in the overseas area, and must be the unmarried child, stepchild, legally adopted child, or legal ward of the DOD member stationed overseas.

Schooling is provided in schools operated by the services, in tuition-fee schools (schools under local government, private, church, or cooperative administration), or by correspondence courses, depending on the number of eligible dependents in an area and availability of private schools that use English as the language of instruction.

Schools operated by the military departments are designed to meet the special problems created by change of duty stations in midyear. Teachers for these schools must meet U.S. qualifications, must be U.S. citizens, and usually are recruited from the United States. Servicemen's wives who meet necessary qualifications may be hired locally for employment in service-operated schools.

Above the high-school level, children of naval personnel are eligible for scholarship assistance at a number of colleges and universities in the United States.

OFFICERS' MESS

A commissioned officers' mess provides social and recreational facilities, meals, and refreshments to commissioned and warrant officers. Where facilities permit, privileges of the mess frequently are extended to officers of the other armed services and to Reserve officers, as well as to officers' dependents. At large activities a mess may be comprised of a dining room, snack bars, cocktail lounges, lounge areas, rooms for private parties, and, in some cases, swimming pools, golf courses, and tennis courts.

ASSISTANCE PROGRAMS

To promote and preserve peace of mind for its officers and their dependents, the Navy offers a number of special assistance programs, some of which have substantial cash value.

Legal Assistance

Personnel may obtain confidential guidance, without cost, from legal assistance officers at most duty stations. Advice rendered generally is on legal, personal, and property problems, or the drafting of legal documents. Assistance does not include representation in civil court.

Casualty Assistance Calls Program

The family of a Navy man who dies on active duty is visited promptly by a Casualty

Assistance Calls Officer who offers help in obtaining rights, benefits, and privileges to which the dependents are entitled, and advises on funeral arrangements and financial assistance, if needed. The visit by the CACO is automatic; the deceased's family need not initiate the action.

Navy Relief Society

Known as the "Navy's own organization to take care of its own," the Navy Relief Society is privately supported, primarily by means of annual requests for contributions. At the service of naval and Marine personnel and dependents who need emergency help, it limits itself, generally, to nonrecurring situations of distress involving clothing, medical care, burial and the like. It cannot underwrite permanent need. The Society may make interest-free loans or outright grants, or a combination of the two.

Navy Mutual Aid Association

The aim of the nonprofit Mutual Aid Association is to provide a limited amount of life insurance at cost and immediate aid to dependents of deceased officers through a \$1000 cash payment wired or cabled anywhere in the world on notice of a member's death. This sum is part of a \$7500 life insurance coverage open to active duty Regular and Reserve Officers of the Navy, Marines, and Coast Guard under 62 years of age. There is an additional death benefit to dependents of \$4500, bringing total benefits to \$12,000 (at present). Premiums vary with age. Other services include quick loans, central depository for documents, and assistance to the family in obtaining all survivor's rights and benefits to which entitled.

Family Services Centers

At many Navy shore installations in the United States, particularly in areas of Fleet concentration, Family Services Centers are established to assist new arrivals in obtaining personal services they may need.

The Centers ensure that newcomers to the area receive a personal welcome, either by home call or at the Centers. In most instances, the new arrival is issued a brochure that includes such information as—

1. A map of the area.
2. A letter of welcome.
3. An area directory.
4. A base information guide.
5. Data on available medical care, Navy Relief, Red Cross, churches, commissaries and exchanges, educational facilities, base facilities, and so on.

In addition, Centers will refer members and their dependents to the proper facility to obtain needed information on, among other things, passport applications, voting, insurance, career counseling, base and off-base housing, and financial assistance. They may provide hospitality kits containing necessary items of household items that new arrivals can borrow until their household goods are delivered.

For the benefit of attached personnel receiving orders, Centers maintain an inventory of brochures containing information on many overseas and continental United States naval installations.

Navy Chaplains

In addition to religious duties, the chaplain is available for personal spiritual and moral guidance, and for performance of marriages and funeral ceremonies.

RECREATION AND SPORTS PROGRAMS

Commanding officers make every attempt to provide recreation and sports programs designed to meet varied interests and desires, and adapted to the needs of personnel and facilities available.

Recreation

Most naval stations provide motion picture entertainment, well-stocked libraries, hobby

craft shops, station newspapers, dances, parties, and shows. In larger metropolitan areas, theater, concert, and sporting event tickets may be offered to service personnel at reduced prices, and in many cases free of charge.

Sports

Sports programs include organized competitions at intramural, intra-district, intra-area, and intra-type (or inter-type) levels. Games and matches between fleet and shore activities are stressed. All-Navy sports championships are a natural outgrowth of the extensive intra/intermural programs, and interservice championships also are held in many instances.

Outstanding Navy athletes who believe they possess the necessary capability and potential may apply to the Chief of Naval Personnel for permission to train for and participate in Pan American, Olympic, and other international sports competitions.

RETIREMENT

Retirement benefits available at the conclusion of a Navy career are, in many respects, superior to similar plans in civilian life. On a day-to-day basis, the most important factor is that the individuals to whom the benefits accrue pay nothing toward their accumulation. Although it is certainly not recommended, it is possible for one to finish their Navy career without benefit of any personal savings or investments, yet look forward with confidence to meeting at least the necessities of the remaining years based solely on retirement pay and subsidiary benefits.

There are three types of retirement: voluntary, statutory, and retirement for physical disability.

Voluntary Retirement

Officers, including warrants, are eligible for voluntary retirement after completing 20 years of active service as indicated in figure 3-7. Reserve officers (not on active duty) are entitled

LAW— TITLE 10	TYPE OF RETIRE- MENT	APPLICABLE TO	CREDITABLE SERVICE	GRADE ON RETIRED LIST	PAY
Sec. 6321	40 years service	Permanent officers	Full time active duty in Regular or Re- serve components of Armed Forces	Grade held at time of retirement (unless entitled to higher grade under other law)	2½% times the basic pay of the grade in which retired times the sum of the following (a) service credited for basic pay purposes as of 31 May 1958, and (b) active service (including active duty for training, inactive duty training, point credit for corre- spondence courses, etc.) subsequent to 31 May 1958. (Re- tired pay may not exceed 75% of the basic pay on which such pay is based)
Sec. 6322	30 years service	Permanent officers	Same as above	Same as above	
Sec. 6326	30 years service	Temporary officers and warrant offi- cers with perma- nent enlisted sta- tus	Same as above, less time lost for AWOL, SKMC or NPDI	Same as above	
Sec. 6323	20 years service	Permanent officers and officers whose permanent status is enlisted	Active duty in Navy, Army, Marine Corps, Air Force, Coast Guard or Re- serve components thereof, including active duty for training, at least 10 years of which shall have been commis- sioned	Same as above	
Sec. 1293	20 years service	Warrant officers	Full time active duty in Armed Forces or Reserve components	Warrant officer grade held at time of retire- ment (unless entitled to higher grade under other law)	

Figure 3-7.—Voluntary retirement programs for Regular commissioned and warrant officers.

134.25

to retired pay benefits after reaching age 60 if they have completed 20 years of satisfactory Federal service (of which the last 8 years were in a Reserve component).

Figure 3-7 presents the essential points of all the voluntary retirement programs. Application for retirement is normally instituted by the officer desiring retirement, but acceptance rests with the Secretary of the Navy. The full administrative process involved in retirement is too lengthy for the purposes of this discussion, but one aspect should be emphasized. A physical examination is a very important part of the retirement procedure. Discovery of any defects that will alter the retirement status will be acted upon, but once the processing is complete, there is no way that retired status can be altered

except by reason of disability incurred as a result of being called back to active duty.

Statutory (Involuntary) Retirement

To ensure youth and vigor in responsible positions and to prevent stagnation in grade, the Navy has laws which require the retirement of permanent officers and warrant officers after reaching a certain age, after failing of selection for promotion or continuation, after completion of a certain number of years of service, or a combination of these elements. A compilation of the statutory requirements for permanent Regular male officers is shown in figure 3-8. Statutory requirements require no application from the officer concerned.

NAVAL ORIENTATION

All Reserve officers holding a grade above chief warrant officer, W-4, are transferred to the Retired Reserve upon reaching the age of 62. Transfer to the Retired Reserve by reason of age carries with it no retired pay unless the officer is otherwise eligible for such pay.

Disability Retirement

The provisions of the physical disability retirement law are beyond the scope of this text, because they apply only to a small minority of naval personnel and involve such diverse considerations as the degree (percentage) of

disability, whether misconduct is involved, the numbers of years served on active duty, and whether the disability is of a permanent or temporary nature.

Members of the service retired because of physical disability receive certain tax benefits. If an officer retires for other than physical reasons, the entire amount of retired pay is taxable. If an officer is retired for physical reasons, however, and elects retired pay on the basis of percentage of disability, such pay is tax exempt. If the officer elects retired pay based on years of service, the amount of retired pay that is in excess of that one would receive if elected on the basis of percentage of disability is taxable.

GRADE	CATEGORY (OR GRADE)	YEARS OF SERVICE	YEARS IN GRADE	SELECTION STATUS
RADM	Unrestricted Line	35	5	Not Selected for Continuation
	Restricted Line or Staff	35	7	Not Selected for Continuation
CAPT	All	31	Not Applicable	Not on Promotion List
		30		Twice Failed for Selection
	NOTE.—A Limited Number of Restricted Line and Staff Corps Captains may be Continued until Completion 35 years.			
CDR	All, except LDO	26	Not Applicable	Twice Failed for Selection
LCDR	All, except LDO	20		
LDO Officers	ALL	30		Not Applicable
	LCDR*	Not Applicable	Twice Failed for Selection	
	*If held the permanent status of a warrant officer when first appointed as an LDO, has the option, instead of being retired, of reverting to the grade he would hold had he not been appointed an LDO. If held a permanent grade below warrant officer, W-1, when first appointed as an LDO, has the option, instead of being retired, of reverting to the grade he would hold had he not been appointed as an LDO, but had instead been appointed a warrant officer, W-1.			

PAY 2½ times the basic pay of the grade in which retired times the sum of the following (a) service credited for basic pay purposes as of May 1958, and (b) active service (including active duty for training, inactive duty training, point credit for correspondence courses, etc.) subsequent to 31 May 1958. (Maximum retired pay 75% of basic pay).

GRADE ON RETIRED LIST: Grade in which serving at time of retirement (unless entitled to higher grade under other law).

NOTE: Captains and Commanders, except those of the MC, DC, MSC, or NC, will be retired after completion of 20 years of total commissioned service if considered for, and not selected for continuation on the active list pursuant to the provisions of PL 86-155 (the so-called "HUMP BILL").

Total commissioned service is computed from 30 June of the "Service Date" shown in the current Navy register.

Figure 3-8.—Statutory service retirement for permanent Regular male officers.

Social Security Benefits

Active duty military personnel are placed under full Social Security coverage immediately upon entering service. Credits based on military service are not lost regardless of retirement or release from the service. A service person may receive retirement pay, or any form of compensation or pension from the Veterans Administration, PLUS Social Security old age insurance payments at the age of 65 (or optionally at age 62). If totally disabled, one may apply for Social Security benefits immediately.

Survivor Benefit Plan (SBP)

A new program that assures financial protection for survivors of retired Uniformed Service members went into effect on September 21, 1972, as Public Law 92-425. This program is called the Survivor Benefit Plan (SBP) which provides survivor income of up to 55% of the retired pay of retirees' to their widows or widowers and dependent children.

In the past, surviving members of retirees' families often found themselves with little or no income following the retirees' deaths. The new SBP fills that gap in the area of service benefits. Until passage of the new law, the retired pay of a retired member of the Uniformed Services ended with his or her death, unless they had elected voluntarily to participate in the Retired Servicemans Family Protection Plan (RSFPP)—known originally as the Contingency Option Act.

Under the Survivor Benefit Plan an individual will be automatically enrolled in the plan with maximum coverage when they retire if they have spouses or dependent children at retirement time, unless they elect a lesser coverage or decline participation before becoming entitled to retired pay. To ensure that the SBP decision gets in with other retirement documents, this must be done 30 days before the first day for which the retiree can receive retired pay.

Since the Federal Government pays a substantial part of the SBP cost, a retiree gives

up only a small part of his or her retired pay to provide maximum coverage for their dependents.

Benefits of Retirement

In time of peace, retired officers may not be ordered to active duty without their consent. Although they may be ordered to active duty in time of war or national emergency, they are not required to hold themselves in readiness for active service.

Officers may use their military titles in commercial enterprises, and they are entitled to wear the prescribed uniform of the grade held on the retired list when the wearing is appropriate.

Retired officers and their dependents are entitled for life to the same medical and dental services provided their active duty counterparts, as well as the privilege of making purchases in commissaries, exchanges, and ship's service stores.

Retired, as well as active, personnel often overlook the fact that they may have acquired veteran status and are thus entitled to many benefits available from the Veterans Administration and from the state in which residing. These may include employment counseling, home and farm loans, unemployment compensation, burial rights, and VA benefits for veterans with disabilities.

SURVIVORS' BENEFITS

Younger men usually are so busy living and making a living that they put off systematic planning for their families until they approach middle age and maximum earnings. Before that time, in most cases, they cannot afford adequate protection anyhow. If they choose a Navy career, this is one worry they can forget. Provision for their dependents begins the moment they enter the naval service and continues into retirement.

Financial security for dependents of deceased naval officers is guaranteed under the

Serviceman's and Veteran's Survivor Benefits Act, which places all members of the Armed Forces under Social Security.

The Survivor Benefits Act is a package deal for long-range security of service families. It combines full and permanent Social Security eligibility with increased death and indemnity benefits paid by the VA to dependents of persons who die as a result of military service. The latter benefits are separate from Social Security, and accrue whether death occurred during peace or war, so long as it resulted from a service-connected cause. When sums paid by both sources are added, they amount to a monthly income for your family that only those in the most fortunate financial circumstances could provide in civil life. And that income can be augmented by a retirement annuity made possible through the Survivor Benefit Plan.

In addition to a liberal schedule of death gratuities and monthly compensation payments, the act provides for a considerable number of miscellaneous benefits. These include, for example, shipment of household effects, dependents' transportation, homestead privileges for establishing a home on Government land, Federal employment privileges, commissary and exchange privileges, and Medicare.

If a naval officer dies on active service, or of service-connected causes within 120 days after release, the designated survivor also is entitled to the following benefits:

1. Navy death gratuity equal to one-half a year's pay. The amount may not be less than \$800 or more than \$3000. It is paid as promptly as possible and is not taxable.

2. Social Security lump-sum death payment ranging from \$132 to \$255, based on average earnings.

3. Payment up to \$250 toward private funeral and burial expenses, for services not provided by the Government; or interment at no expense in any open national cemetery. A headstone for the deceased is furnished in either case.

In addition to other survivor benefits, all persons on active duty in excess of 30 days are covered by \$20,000 Servicemen's Group Life

Insurance at a cost to the serviceman of only \$3.40 per month. Although coverage may be reduced or terminated if requested in writing, this is extremely inexpensive. A life insurance program is an important factor for any officer to consider, especially if one has family responsibilities.

THE NAVY WAY OF LIFE

Navy life is a demanding life. It calls for complete loyalty and dedication, and for a great measure of selflessness. There are pleasant assignments and those that are not so pleasant. But every billet that you fill can be opportunity for gain for the Navy, your shipmates, and yourself. It takes a mature and observant person to always see these opportunities, but they are there. At times it can be a dangerous life. This is inherent in an armed service and particularly a service with worldwide commitments. But for the person with a desire to serve country and oneself in a variety of interesting and challenging ways, it is a stimulating, satisfying way of life.

The family of the naval officer is a vital part of the Navy team. Far more so than in civilian life, a Navy wife has the opportunity to further her husband's career. Her patience, understanding, and her acceptance of additional family responsibility contribute immeasurably to his peace of mind. Considering the responsibilities of an officer in the world's foremost Navy, it is readily apparent that his peace of mind is essential to the best performance of his duty. It is no wonder, then, that the welfare of his wife and family, leading to a happy home life, play such a major role toward the success of the Navy.

The Navy recognizes the importance of the role played by the officer's family and realizes that service families can best do their part only when they are taken care of and kept informed of the Navy's functions and missions to the fullest possible extent. Families should be encouraged, therefore, to learn about the great responsibility that devolves upon a naval officer, and realize how much they can contribute toward achieving the Navy's goals.

The very nature of a naval officer's occupation gives his family a range of experience unparalleled by their civilian counterparts in the world today. Inherently this range gives rise to equally unparalleled social and cultural opportunities for the entire family. How an individual profits from these opportunities is up to him; the doorway is there and it is invitingly open.

Because of their mutual importance to the Navy, officers and their families have every right to expect the Navy to work for their benefit and interest—and this will always be done. In return, the Navy counts on every service family to do its part by taking advantage of the benefits offered, and also to cooperate by contributing toward the betterment of the naval organization and the fulfillment of its mission.

CHAPTER 4

NAVAL TERMS AND CUSTOMS

Naval regulations and naval customs are practically synonymous. As a matter of fact, the majority of our present naval regulations have been derived from naval customs developed in the past. Salutes to the quarterdeck, ceremonies for relieving of command, rendering of side honors, precedence of officers in entering boats, visits of courtesy upon reporting to a ship or station, for example, are popularly referred to as naval customs, and yet are now fully covered by specific regulations. It is more than probable that changes or extensions of these regulations in the future will originate from customs that are building up within the service today. The fact that the Navy recognizes valid customs as having substantially the same effect as regulations, therefore, makes the lack of clear distinction between customs and regulations relatively unimportant.

Unfortunately there is no official text for the study of naval customs which have not yet become regulations. They are of limited number, and actual association with the service is the best means of becoming familiar with them.

CUSTOMS

There can be no such thing as a custom that is contrary to existing law or regulation.

Manual for Courts-Martial

From time to time, situations arise that are not covered by written rules. Conduct in such cases is governed by customs of the service. These customs may be likened, in their origin and development, to portions of the common law of England similarly established. But custom

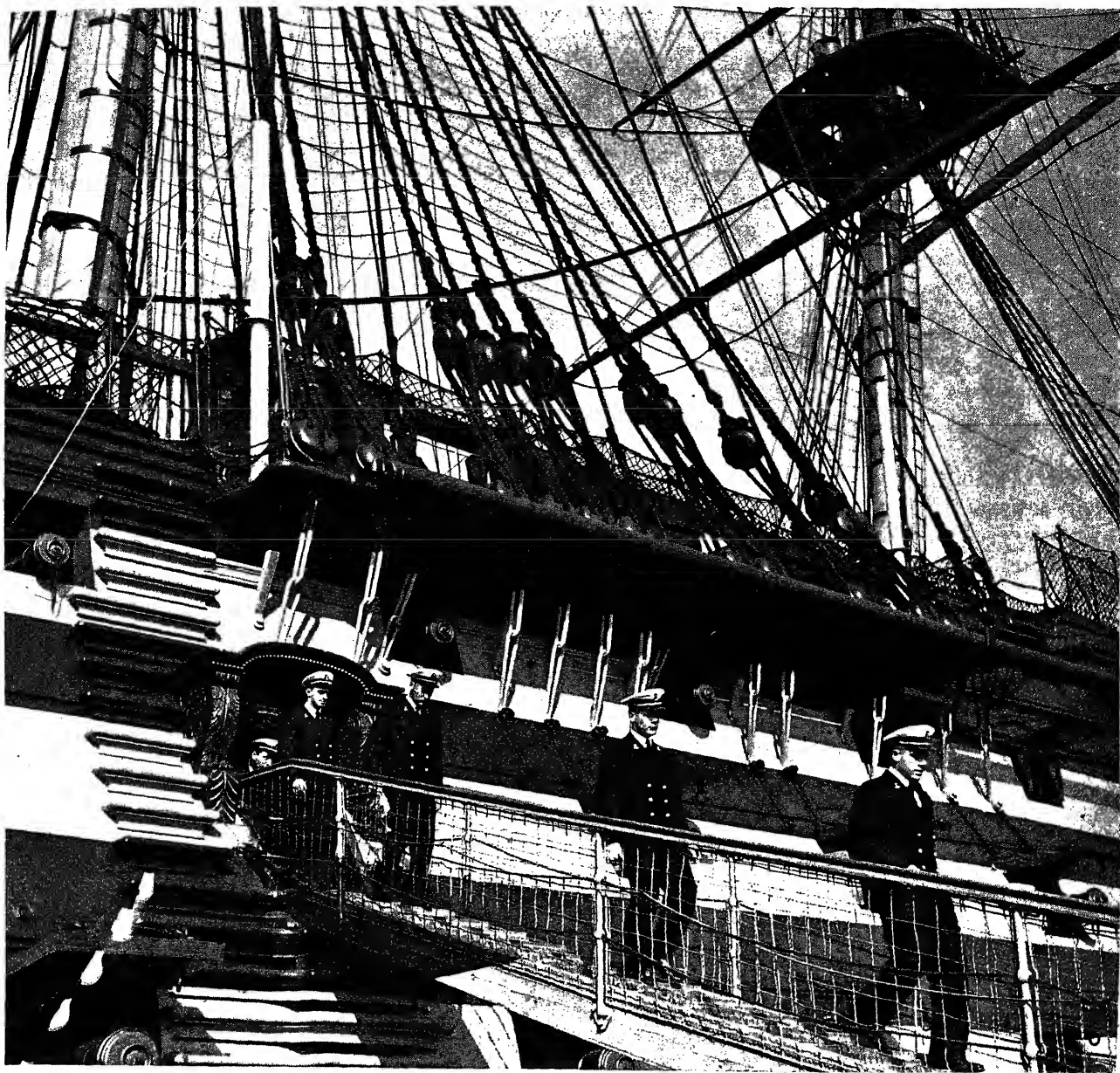
is not to be confused with usage. Custom has the force of law; usage is merely a fact. There can be no custom unless accompanied by usage.

An act or condition acquires the status of a custom when it is continued consistently over a long period of time; when it is well defined and uniformly followed; when it is generally accepted so as to seem almost compulsory; and when it is not in opposition to the terms and provisions of a statute, lawful regulation, or order. It is the obligatory force which attaches to custom that enables it finally to ripen into law.

In the establishment of custom, on the other hand, omission is sometimes as important as commission. Long-continued nonusage may operate to deprive a particular custom of its obligatory character. Some customs, indeed, have the form of "do not" rather than "do." Taboos are often more stringently enforced than customs. The breach of some naval customs merely brands the offender as ill-bred; the violation of others brings disciplinary action.

CUSTOMS AND TRADITION

Customs are closely linked with tradition, and much esprit de corps of the naval service depends on their continued maintenance. Many customs have been passed on to us from great navies of the world, especially the British. (See figure 4-1.) But the customs which we have adopted have been supplemented by traditions all our own. Customs—unwritten, but nonetheless potent factors in the government of the Navy, which time and experience have proved to make for better order, discipline, and



134.27

Figure 4-1.—Many of our present-day customs were in force aboard Lord Nelson's flagship, HMS Victory. The historic vessel is tied up at Portsmouth, England.

increased efficiency—have, in obedience to a natural law, changed their form by being merged into written regulations.

Our naval tradition, on the other hand, has been developed from the performance of our

own naval personnel. No one knew better than John Paul Jones the importance of great tradition. Thus, in the battle against the *Serapis*, he created two of the great American traditions by showing that he didn't know when he was

beaten, and later by generously returning to the British captain the sword which his daring behavior had won. Jones was preeminent among our tradition makers and marked the way for a memorable group to follow—Truxtun, Preble, Macdonough, Lawrence, Porter, Farragut, and Dewey. The traditions of our Navy spring from the gallant deeds of our officers and men. Our customs are patterns of behavior which we have developed for ourselves or borrowed from others.

NAVAL TERMS AND EXPRESSIONS

Persons entering a new profession must learn the vocabulary peculiar to that profession to understand and make themselves understood by their associates. The Navy, too, has its own vocabulary, containing unique terms for many commonplace items. To a young midshipman, going aboard ship for the first time, this will be confusing and perhaps seem unnecessary. If he is alert, however, he will soon realize that there is a great deal of merit in the language of the sea. He will come to understand that, under certain circumstances, a word or a few words mean a precise thing or a certain sequence of actions. He will notice that it is unnecessary to accompany an order with extended explanatory details. When the proper order is given, the desired response is obtained. He will notice, too, that when there is a chance for confusion, a strange, new term may be substituted for an old, familiar one.

For example, the word stop may be used in orders for the ship's engines but never for the anchor windlass or for the helm. An officer conning a ship issues a veritable stream of orders when a ship is getting underway or mooring or anchoring. Yet, when couched in proper, seaman-like language, the orders are understood and are carried out by the proper individual or group. If the conning officer wants to stop all the engines, to stop the swing of the ship, or to stop the anchor windlass he gives the order "All engines stop," "Meet her," or "Avast heaving," respectively. There is no chance for confusion; the person on the engine order telegraph rings up stop, the steersman puts the rudder over, or

the proper talker relays the order, "Avast heaving," to the anchor detail on the forecastle.

An order or a term may have its origin in antiquity or it may have been recently coined, but that is not important. What is important is that the expression conveys, in as few words as possible, an exact meaning with little or no chance for confusion. Those that fit this requirement live on as long as there is need for them; those that do not are soon replaced.

It behooves a young officer to learn and use this language because it is a necessary tool of his trade.

This chapter discusses a few of the many expressions that form our nautical language. (See figure 4-2.)

ANCHOR WATCH

Years ago when ships were equipped with anchor cables of hempen rope and oil-burning riding lights, special care was taken while riding at anchor, to see that these lamps were not extinguished, that the cables did not part, and that the ship did not drag her anchor. The watch responsible for this particular duty was designated the "anchor watch." The anchor watch, as a sea term, is still retained although its duties have been changed considerably since the old days. Today, the anchor watch is a detail of personnel on deck at night safeguarding the vessel when at anchor.

AVAST

"Avast" is a corruption of the original form which meant "hold fast" or "stand fast." Today it is an order to stop or cease, as "Avast heaving!"

AYE, AYE

The present meaning of the expression "Aye, aye," which originally was "Yes, yes" (old English) is "I understand, and I will do it."

BELLS

Certain words and expressions preserve for us old customs, as in the instance of bells struck aboard ship. They are not primarily intended to

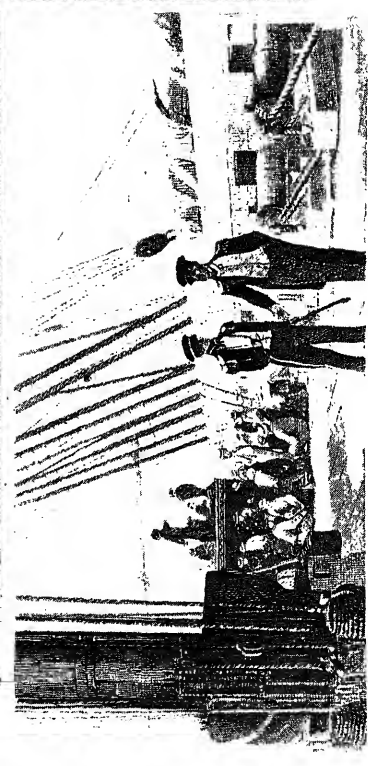
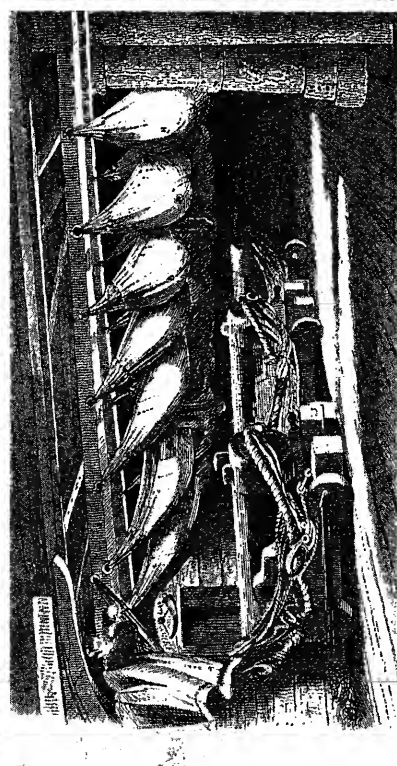
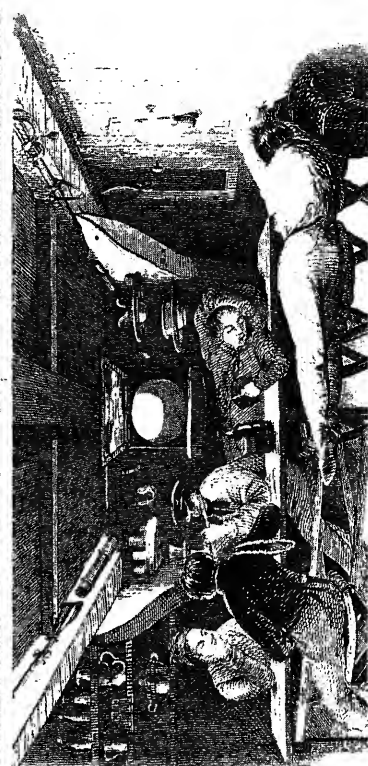
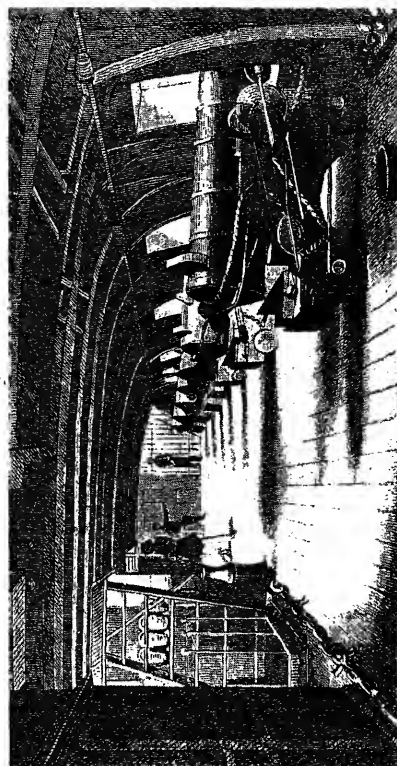
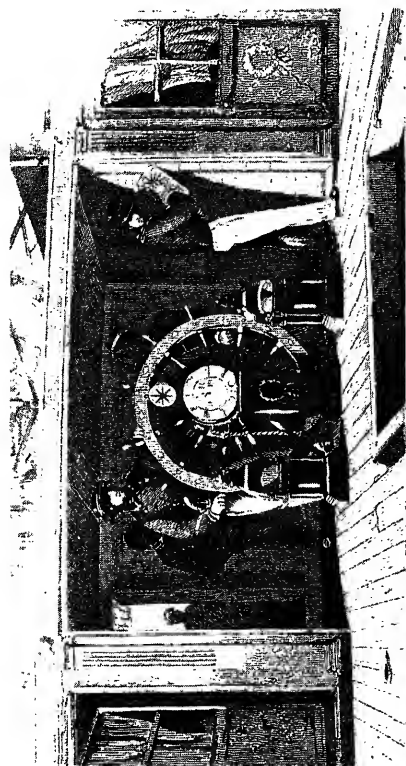


Figure 4-2.—A great number of our sea terms date to and beyond the days pictured here. Useful terms we retain, but many drift into disuse

replace clocks for telling time. But they do tell clock time by measuring the periods when certain members of the crew are standing watch.

It started with the hourglass—which really wasn't an hourglass but a half-hour glass. The quartermaster on watch turned the glass at the end of his first half-hour, striking the bell an additional stroke each time, until at the end of 4 hours he would strike the bell eight times, signaling the completion of his watch and the beginning of the next 4-hour watch. So it went during the six watches of the 24 hours, ending at midnight. (Length of the watch sometimes varies. See "Dog Watch.") While the hourglass has long been out of date, the bells are still used aboard ship.

BILGE

"Bilge" usually refers to the bottom of a ship, or more correctly to the curved part of the ship's hull. It also has another connotation. Midshipmen who are dropped from school for academic reasons are said to be "bilged." Thus, when used as a verb, the term means to be dropped out of the bottom—in this case the bottom of the class.

BINNACLE LIST

The binnacle list gets its name from the old nautical practice of placing the sicklist on the binnacle (stand containing ship's compass) each morning, so that it would be readily available for the captain. The modern binnacle list contains the names of personnel suffering minor complaints which preclude their employment on strenuous duty. Hospitalized personnel go on the sicklist.

BITTER END

"Bitter end" was the turn of the cable's end around the bitts. It is now used to define the end of the chain cable which is secured in the chain locker or the loose end of a line. In all cases the inboard end is referred to as the bitter end.

BLUEJACKET

Uniforms first adopted for the Royal Navy included a short, blue jacket. Although no universal uniform was prescribed for U.S. Navy enlisted personnel until the 1850s, many men wore the Royal Navy blue jacket unofficially in the early days of that century. Enlisted personnel are sometime referred to as Bluejackets. Although the white hat is no longer a part of the enlisted personnel's uniform the term "white hat," is still used to refer to Navy enlisted personnel below the rate of chief petty officer.

BOATSWAIN

Boatswain in pronounced BO-sun. "Swain" or "swein" is the Saxon word for servant or boy. In this instance the word refers to a warrant or petty officer in charge of the deck crew and is responsible for the maintenance of the ship's hull and external equipment.

BOATSWAIN'S PIPE

The boatswain's pipe, or whistle, is an article of great antiquity. Originally employed to "call the stroke" in ancient row-galleys, it became, in the early English Navy, a badge of office and of honor. Later the pipe became the distinctive emblem of the boatswain and his mates. Today (figure 4-3) the boatswain's mate uses his pipe when the "word is passed," when officers are piped over the side, etc.

BRIG

Lord Nelson used a brig (a type of sailing ship) in battle for removing prisoners from his ships, hence prisons at sea came to be known as brigs.

BUMBOAT

The bumboat is a boat employed by civilians to carry salable provisions, vegetables, and small merchandise to ships. The term may have been derived from "boom-boat," indicating boats permitted to lie at booms.

CAPTAIN

This term comes from the Latin *caput* meaning "head."

CAULK

"Caulk," commonly mispronounced "cork," means to pack a seam in the planking of a ship. When wooden ships were caulked in drydock, workmen usually had to lie on their backs underneath the hull. In this position it was not difficult to fall asleep. Hence, to "take a caulk," or to "caulk off"—the sailor's expression for sleeping, or taking a nap.

CHAINS

On many sailing ships, shrouds supporting the masts were secured to links of chain attached to

the ships' sides. To get a better lead for the shrouds and to keep them from bearing on the bulwarks, the chains were led up around thick planks jutting from the ships' sides. These planks made convenient platforms from which to heave the lead, and the leadsman was "in the chains." Later, as now, shrouds were secured on deck inboard of bulwarks or lifelines. Special platforms were built for the leadsman, but the term "chains" was retained.

CHARLIE NOBLE

The term "Charlie Noble" is applied to the galley smoke pipe. While its origin is obscure, it is generally believed to have been derived from the British merchant skipper, Charlie Noble, who demanded a high polish on the galley funnel. His bright copper galley funnel became well known in the ports he visited.

CHIT

Derived from Hindi, the term was used by the old East India Company to signify almost any sort of paper used in everyday business transactions.

CHRISTENING A SHIP

Launching ceremonies have had a religious significance from the earliest days. The christening ceremony originated as a propitiation to the gods of the elements. In some countries as recently as a hundred years ago a launching frequently resembled a baptismal ceremony and was performed by priests.

Early in the 19th century, women and those other than the clergy and high officials began to take part in the ceremony of launching ships.

Today the ceremony usually consists in the naming of the vessel by a sponsor, and the breaking of a bottle of wine against the ship's bow as she slides into the water. People have been known to miss the ship entirely, and so today the bottle is secured by a lanyard to the bow of the ship—as a safety measure for



80.1

Figure 4-3.—The boatswain's pipe was in use long before loudspeaker systems were invented. It is being used here to bring the crew's attention to a word about

COMMISSION PENNANT

The origin of the commission pennant is said to date back to the 17th century, when the Dutch were fighting the English. Admiral Tromp hoisted a broom at his masthead, to indicate his intention to sweep the English from the sea. The gesture was soon answered by the English admiral who hoisted a horsewhip, to indicate his intention to chastise the Dutch. The British carried out their boast and ever since, the narrow, or coachwhip, pennant (symbolizing the original horsewhip) has been the distinctive mark of a vessel of war and has been adopted by all nations.

The commission pennant, as it is called today, is blue at the hoist, with a union of seven white stars; it is red and white at the fly, in two horizontal stripes. The number of stars has no special significance but was arbitrarily selected as providing the most suitable display. The pennant is flown at the main by vessels not carrying flag officers. In lieu of the commission pennant, a vessel with an admiral or other officer in command of a squadron, group, etc., or a high-ranking civil official aboard, flies the personal flag or command pennant of that person.

THE CONN

To "conn" means to control, or direct by rudder and engine order telegraph, the movements of a ship. When a person has the conn, it indicates he is the one and only person who can give orders to the wheel and engine order telegraph at any one time. The exact derivation of the word "conn" is not known.

COXSWAIN (COCKSWAIN)

From "cock," a small boat, and "swain," a servant. Enlisted man in charge of a boat in the absence of a line officer. Pronounced COX-un.

CROSSING THE LINE

The boisterous ceremonies of crossing the line (Equator) are so ancient that their

derivation is lost. It is said that this custom had its origin in propitiatory offerings to the deities of the sea by mariners who thought that gods and goddesses controlled the elements.

Today when naval ships cross the Equator, those members of the crew (called "pollywogs") who have never before crossed the line are initiated by the more experienced members of the crew ("shellbacks"). The usual formula is for the "shellbacks" to attire themselves in strange costumes representing Neptune, Amphitrite, and other favorites of the sea. A court is held among Neptune's subjects, and the novices are summoned to trial. The fate administered to each is in the nature of ridicule, such as a parade of the person's particular idiosyncrasies and a caricature of his foibles. The victim is usually lathered with some frightful concoction, shaved (with a wooden razor), and ducked backward into a tank of water. He is then issued a certificate, signed by Neptunus Rex, documenting the fact that he has crossed the line and is now a full-fledged "shellback."

CUT OF HIS JIB

The nationality of the early sailing ships was frequently determined by the shape or cut of their jib sails. Use of the phrase as applied to a man originally referred to his nose—which, like a jib, is the first feature of its wearer to come into view. Ultimately it was extended to describe a man's general appearance.

DIPPING THE ENSIGN

Dipping the flag in salute is a relic of an old-time custom by which a merchant vessel was required not only to heave to when approaching a warship on the high seas, but also to clew up all her canvas to indicate her honesty and willingness to be searched. Delays resulted, and in later years the rule of dipping the flag was authorized as a timesaving substitute. Ships of the U.S. Navy return such salutes dip for dip, except for dips rendered by ships under the flags of nations not formally recognized by the United States. No ship of our Navy initiates a dip.

DOG WATCH

The term "dog watch" is a corruption of "dock watch," that is, a watch that has been docked or shortened. Usually the term is applied to the two sections into which the 1600-2000 watch is divided, and they are referred to as the first and second dog watch.

EYES OF THE SHIP

Ships in the early days generally had in the bow carved heads of mythological monsters or patrons. The fore part of the ship was called the "head." The term "eyes of the ship" followed from the eyes of the figures placed there.

FLAG AT HALF-MAST

At times of mourning in old sailing days, the yards were "cockbilled" and the rigging was slacked off, to indicate that the grief was so great that it was impossible to keep things shipshape. Today the half-masting of the colors is a survival of the days when a slovenly appearance characterized mourning on shipboard.

FORECASTLE

"Forecastle" is pronounced "focsul." In the days of Columbus, ships were fitted with castle-like eminences fore and aft. While both structures have disappeared, the term "forecastle," referring to the same general part of the ship as the original "forward castle," still remains.

GANGWAY

The word "gangway" is taken from the anglo-saxon word "gang," to go, make a passage in, or cut out (or cut through). It is commonly used as an order to stand aside or to stand clear.

GROG

Admiral Edward Vernon of the Royal Navy is responsible for the term "grog." He was in the habit of walking the deck of his flagship in a boatcloak of grogram cloth. This suggested a nickname for the popular flag officer, and Admiral Vernon came to be known



134.29
Figure 4-4.—This is the grog tub aboard the USS Constitution, a reminder of the days when a mixture of rum and water was served as a ration to the crew.

affectionately as "Old Grog." In 1740 he introduced West Indian rum aboard ship and had a mixture of rum and water served as a ration to the crews. (See figure 4-4.) It was intended as a preventive against fevers, which so often decimated expeditions to the West Indies. This innovation was received with enthusiasm by the men on the flagship *Burford*, who promptly named the beverage after this illustrious leader.

Forty years later verses were composed on the cruiser *Berwick* which bespeak the popularity of the officer and the drink; the last two stanzas are:

A mighty bowl on deck he drew,
And filled it to the brink;
Such drank the *Burford's* gallant crew,
And such the gods shall drink.
The sacred robe which Vernon wore
Was drenched within the same;
And hence his virtues guard our shore,
And grog derives its name.

GUN SALUTES

Originally, a vessel saluting another discharged all her guns rendering herself powerless until a reload could be made—a process requiring considerable time. Thus the ship first rendering the honors showed that she would not attack and feared no attack—the gesture was one of friendship and confidence. Firing blank cartridges is a comparatively modern invention occasioned, it is said, by the fact that a complimentary cannonball once proved fatal to the honored personage. (The “present arms” salute of today was originally a gesture of literal presentation.)

The origin of the twenty-one-gun international salute is of interest. Originally warships fired salutes of seven guns, the number

seven probably having been selected because of the mystical and symbolical significance given it in the Bible.

Although by regulations the salute at sea was seven guns, shore batteries were allowed to fire three guns to the ship's one. The difference was due to the fact that in those days the storage of powder aboard ship was a matter of serious concern, because of lack of facilities for maintaining low and even temperatures in the magazines. Since powder easily spoiled at sea but could be better kept on land, three times as many guns were prescribed. Again, the figure three was probably selected as a multiple because of mystical and symbolical significance.

When powder that was not so difficult to preserve at sea came into general use, the number of guns for the naval international salute



Figure 4-5.—Salute to a departed shipmate. Among military men, firing a gun salute has been a mark of honor for centuries.

134.30

was raised to twenty-one. By common agreement the international salutes of all nations are now twenty-one guns.

International salutes grew out of custom and usage. The custom began with the strong nations exacting from foreign vessels acts of submission, sometimes even by force, but in the 17th century the question of such ceremonials became a matter of negotiation. Although saluting was originally forced upon the vessels of smaller nations to compel them to recognize the superiority of the greater, in the final recognition of the principle of equality between nations, it became customary to render salutes "gun for gun."

Salute Over a Grave. Originally the three volleys fired into the air were supposed to drive away evil spirits as they escaped from the hearts of the dead. It was thought that the doors of men's hearts stood ajar at such times, permitting devils to enter. Today the gun salutes (figure

4-5) are fired as a ceremonious gesture of respect.

HAWSER

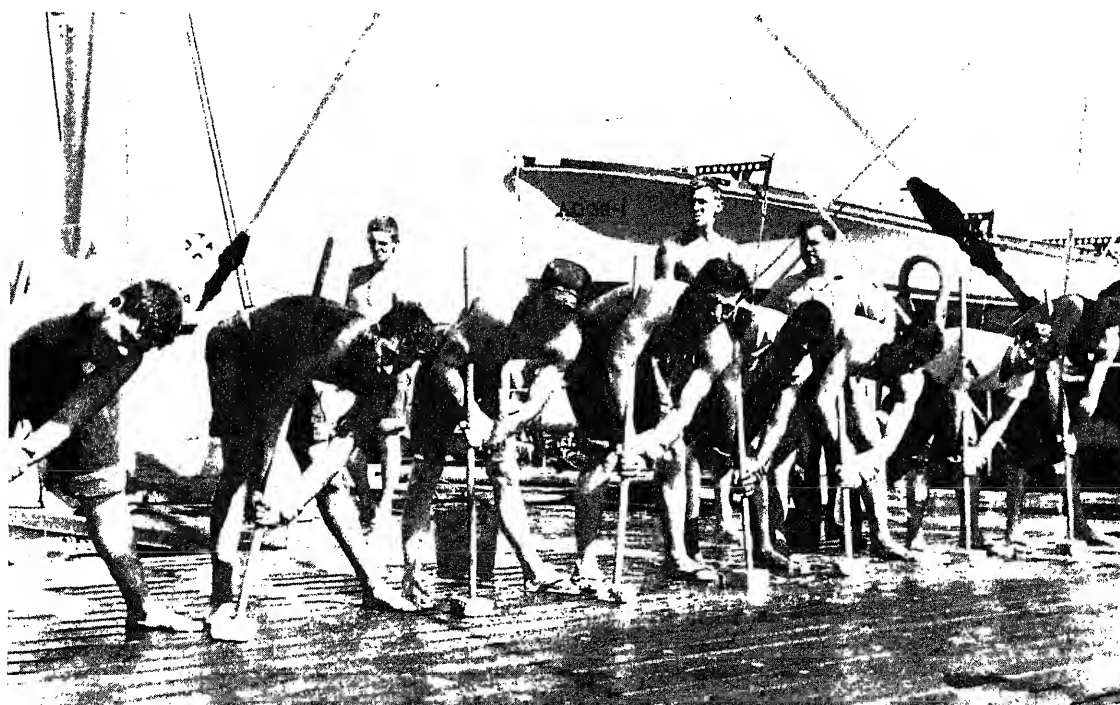
Heavy line of hemp, used for mooring and towing. Formerly used as anchor cable (before chains). From the French hausser; to haul.

HEAD

The ship's lavatory is called the head because these facilities in the old days were located in the forward part of the ship.

HOLYSTONE

The holystone, as we see it today, is a piece of smooth brick or stone, in the top of which a small hole has been gouged. A squilgee (pronounced "squeegee") handle is inserted in the hole and kept there by pressure exerted on it (figure 4-6) while scrubbing the deck. Sand and



134.134

Figure 4-6.—Members of the deck force "assume the position" for scouring a deck. Holystoning originally removed the possibility of splinters in bare feet. It is still considered the best method of smoothing and cleaning wooden decks.

water are used with the holystone to scour a wooden deck.

In the early days the handle was not in use, and the seamen knelt on the deck to give it the necessary scouring. The attitude of prayer thus assumed was responsible, many think, for the stone being called "holy." There are those who think that the name came about as the result of the fact that fragments of broken monuments from Saint Nicholas' church in England were used in the early days to scrub the ships' decks of the British Navy.

JACOB'S LADDER

This ladder made of line is used over the side and aloft. It originally led to the skysail. Probably the allusion was to Biblical Jacob's dream in which he climbed up to the sky.

KEELHAULING

The term "keelhauling" today connotes a verbal reprimand. Originally it comprised a cruel form of punishment that consisted of binding the offender hand and foot, weighting his body, then drawing him under the ship's bottom from one fore yardarm to the other, by means of whips. If the bottom were covered with sharp barnacles, the torture was extreme and the punishment often fatal.

LASHING BROOM TO MASTHEAD

A popular custom in the U.S. Navy is that of lashing a broom to the masthead of a ship when it has participated in a complete victory over an enemy force, thus indicating her ability to sweep the seas. (A ship making the highest gunnery or engineering record in the fleet also displays a broom.) As has been noted, Admiral Tromp originated the custom (see Commission Pennant).

LUCKY BAG

Formerly, a bag in which personal possessions that had been left adrift were stored.

Today, the term refers to any storage area for loose gear picked up by the master-at-arms force.

MAST

The term "captain's mast," or merely "mast," derives from the fact that in early sailing days the usual setting for this type of naval justice was on the weather deck near the ship's mainmast.

MIDSHIPMEN

In early days the crew was quartered in the forecabin, while officers lived in the aftercabin. The title "midshipmen" was originally given to youngsters of the British Navy who acted as messengers and carried orders from officers aft to the men forward. These lads, who had direct contact with the officers, were continuously passing back and forth amidships and were regarded as apprentice officers. The ancient term has survived, and today officer candidates at Annapolis (and other midshipmen's schools) are called midshipmen.

PIPING THE SIDE

To the new officer the custom of piping the side, a heritage from the British Navy, seems one of the strangest of all naval customs. It originated in the days of sail, when captains visited one another at sea and were hoisted on board in net or basket if the weather was too rough to permit the use of ladders.

The officer of the deck ordinarily summoned from the crew several hands to assist the visitor in making the landing on deck. If he were young, a lieutenant perhaps, two men were required to help him; if older, a commander perchance, having increased his girth as well as his grade through the years, he might require four. If, however, he happened to be a captain or an admiral, he may have required six or eight to enable him to secure a stable footing. Thus there came about the custom of having "side boys" to meet officers. When the custom

became a regulation courtesy, the side was similarly attended upon their departure.

The custom of piping the officer alongside and over the gangway is a relic of the piping that was necessary in setting taut and hoisting away the cargo net or basket containing the boarding officer.

QUARTERDECK

There is evidence that the marked respect paid the quarterdeck aboard ship today had its origin many hundreds of years ago. In the days of Greek and Roman sea power, obeisances were made to the pagan altar, which was placed aft. Later the same respect was paid the shrines of the Virgin similarly located. Still later the "king's colors," which were a symbol of the church and state combined, became the object of respect. One is impressed with the thought that the quarterdeck has always been the honored part of the ship. It has retained its "sanctity" today. (The name "poop deck" derives from the Latin word *puppis*, a name given the sacred deck where the pupi or doll images of the dieties were placed.)

SCUTTLEBUTT

A butt is a cask or hogshead. To "scuttle" means to make one or more holes in a ship's side or bottom to sink her. A "scuttlebutt" in the old days was a cask that had an opening in its side, fitted with a spigot. Stout casks of oak were utilized to contain freshwater for drinking purposes. Today any drinking fountain in the Navy is called a "scuttlebutt."

Scuttlebutt—A Type of Rumor. Men naturally congregate at drinking fountains—and rumors start. Hence the term "scuttlebutt" for rumor. (A galley yarn is a similar term. In the early days the galley was frequently a place of meeting, and cooks had the reputation for knowing and passing on the "news.")

SHOW A LEG

The term "show a leg" is synonymous with "rise and shine." It is a slang expression, used generally by boatswains' mates and

masters-at-arms when turning the crew out of their hammocks or bunks.

The call "show a leg" probably derives from the days when women were carried at sea in the British Navy, "the wives of seamen." The women who put out a stockinged leg for identification were not required to turn out at first call.

SICKBAY

Nelson, who was responsible for many British naval customs, forerunners of our own, originated the term "sick berth" in his order to the Mediterranean fleet in 1798. In line-of-battle ships the sick berth was placed in the bows. When round bows were introduced in 1811, the sick berth, keeping its same position, found itself in a bay (semicircular indentation). Thus in 1813 began the use of the term "sickbay." It is customary today for officers to remove their caps when entering sickbay. It may be that this custom stems from the early sailing days when men were not admitted to sickbay until they were about ready for "slipping the cable" (dying).

SKYLARK

To be inattentive or engage in horseplay, usually when one is supposed to be working. The term came about when young sailors would climb to the skysail yardarms and slide down the stays.

SMOKING LAMP

In the old days matches were prohibited to members of the crew, and for their convenience oil lamps were swung in several parts of the ship where they could light a pipe or cigar. (Cigarettes did not become popular until Spanish War days.)

During routine work, smoking was prohibited. It was a simple matter to regulate this practice. The officer of the deck needed only to order the smoking lamps extinguished.

The expression is retained to this day. Before drills, fueling, receiving ammunition, etc.,

the officer of the deck orders the word passed, "The smoking lamp is out," which means "knock off smoking."

STARBOARD AND PORT

In the old Viking ships the right side of the vessel (looking forward) was called the "steerboard" side, because ships were steered by means of a heavy board secured to the right side of the ship. Loading was avoided from that side because of the possibility of damaging the steering gear. Gradually the term "steerboard" was corrupted to "starboard."

The left side of these old ships (the place of loading) was called the "load board" side. This finally became "larboard." Because "starboard" and "larboard" sounded so much alike, the term "port" was substituted in the United States Navy for "larboard." A General Order (18 February 1846) reads: "It having been repeatedly represented to the Department that confusion arises from the use of the words 'Larboard' and 'Starboard' in consequence of their similarity of sound, the word 'Port' is hereafter to be substituted for Larboard." (Perhaps the term "port" was used because, as ships became larger and rose higher in the water, loading took place through openings in the sides called "ports.")

SUNDOWNER

A sundowner is a harsh disciplinarian. The term is derived from the practice of strict captains in the early days who ordered all hands to be aboard by sunset.

TAR

Sailors once covered their clothes with tar or oil to make them waterproof, hence the nickname often applied to mariners.

TATTOO

This term is derived from the old dutch "taptoe," meaning the time to close the taps or

taverns. At the appointed hours, drummers marched from post to post in the town, beating their drums. "First post" was the signal given when they had taken their places and were ready to commence their rounds (this survives in the Navy as "first call"), while "last post" was sounded when they had reached the end of their rounds (this survives as our present "tattoo"). The "first call" is sounded 10 minutes before "taps"; "tattoo," 5 minutes before "taps." "Taps" is the signal for lights out.

WARDROOM

It is generally believed that this term came from the British Navy. Back in the 18th century there was a compartment aboard ship near the officers' staterooms, which was used as a storage room, particularly for officers' clothing. It was called the "wardroom." When this compartment was empty, the lieutenants met there informally and for meals. Gradually it was used entirely as an officers' messroom, and such was the custom when the United States Navy came into being.

WORKING OFF A DEAD HORSE

"Working off a dead horse" refers to the old custom of rigging up a stuffed horse and burning it over the side to celebrate the fact that the pay advanced at shipping on had been worked off. After this ceremony the crew started to accumulate wages "on the books." This has become a common expression ashore. A lot of "dead horses" were worked off during the depression years of the 1930s.

UNIFORMS AND TRADITION

The uniform promotes a feeling of unity and contributes smartness to the appearance of an individual or group. Insignia worn upon the uniform indicate corps, grade, rate, and specialty, as well as other distinguishing features, such as awards, campaign ribbons, and service stripes to which the wearer is entitled.

The meaning of the uniform is well expressed in the following excerpt, taken from

an address delivered to a graduating group of midshipmen:

"Have an exalted pride in the uniform you wear and all that it represents. Wear it correctly; wear it proudly. Salute it with respect when you meet it; behave in it in a seemly manner; protect it when it is offended or in danger. It represents the fleet, the Nation, your home, and your family. It is a symbol of all that is dear to you and of all that men are willing to die for."

OFFICERS' UNIFORMS

As late as the middle of the 18th century, sailors' dress generally lacked uniformity. A group of British naval officers, habitues of Will's Coffee House, supposedly set the fashion of officers' uniforms in the Royal Navy. In 1745, after much discussion these officers presented a petition to the Admiralty, requesting a prescribed dress. Various patterns and colors were accordingly prepared, and final selection was made by the King himself. Having seen the Duchess of Bedford riding in a blue habit which greatly took his fancy, George II designated blue as the color to be adopted by the Royal Navy.

The Continental Navy officer's uniform was much like the one worn in the Royal Navy. No doubt both services had the same purpose in adopting a uniform that made it possible to distinguish rank and also improved appearance and lifted morale.

In 1877 our Navy adopted the single-breasted blouse with a high military collar. The present double-breasted coat was accepted in 1918.

In 1830 naval chaplains were authorized to wear "a plain black coat, vest and pantaloons," and in 1841 the Navy Department authorized chaplains to wear the official eagle button. Chaplains wore the cross on their uniforms for the first time in 1864.

The oak leaf and acorn (symbol of the druid priest-physicians) was first used to symbolize the surgeons and the surgeon's mate in 1834. A simplified form of the earliest symbol is in use today as the medical officer's corps device. The caduceus (classic symbol of the Greek god of medicine) was first adopted in 1886 as the specialty mark for the enlisted rating of

apothecary. Upon establishment of the Hospital Corps the Geneva cross was adopted as the corps device for the warrant officers and enlisted men of that corps. In 1913 the caduceus was prescribed as corps device for Hospital Corps warrant officers, and in April 1948 it replaced the red cross as the specialty mark for enlisted corpsmen.

A variation of the medical corps oak leaf and acorn is the corps device of the Navy Dental Corps.

Gold insignia to denote rank (and in the case of staff officers also their special branches) gradually came into use.

Today comfort, service, and appearance dictate the styling of the naval officer's uniform, and, with the exception of full-dress attire, most frills have disappeared.

ENLISTED UNIFORMS

The uniform of today's bluejacket was also "custom-tailored." The sailors of the American Navy of 1776 had no official uniform, and as late as 1852 the seaman ornamented his costume in any way he fancied. But standardization then set in.

Jumper Collars and Cuffs

The old salt of sailing ship days wore his hair braided into a pigtail and "clubbed" or doubled up into a knot and tied at the back of his neck, perhaps neatly done up in an eel skin. Tar was applied to keep pigtail or clubbed hair in shape. To protect the collar of the uniform from tar-stain, the bluejacket wore a bandanna. The collar was often ornamented according to the personal taste of the men who wore it.

In the 1860s, enlisted men were directed to border their collars with two rows of thread. The third row was added after the turn of the century. The practice of sewing three rows of tape on the collar was no doubt selected for decorative effect and has no special significance. Tradition to the contrary, it did not commemorate the three famous sea victories of Great Britain's Lord Nelson.

Use of stripes on the cuffs of jumpers was also first authorized in 1866, one or more stripes

being prescribed to indicate petty officers and nonrated men.

Neckerchiefs

The tradition that the black neckerchief was worn for the first time at Nelson's funeral and has since been adopted in commemoration of this great leader is not based on fact. Silk ties, usually black, were worn by enlisted men in the United States Navy as early as 1776. The black silk neckerchief had been officially a part of the uniform of enlisted men since 1841, the first time enlisted men's uniforms were prescribed in Uniform Regulations.

Trousers

Although there are several legends concerning bell-bottom trousers, there is no known reason for their introduction or wear. At least two legends are wholly believable. First, it was easy to roll up bell-bottom trousers when washing down decks or working in wet weather.

Second, if a sailor found himself overboard, he could easily kick these trousers from his legs.

The square (broadfall) flap that is buttoned in front at the waistband may also have been designed for speedy removal by a man overboard. With one quick yank the flap can be torn loose. If there is any significance in the number of buttons—13—it has never been officially explained. More than likely, that number was chosen because it resulted in a more symmetrical pattern.

Uniform Change

In July of 1975, a radical change was brought about in the enlisted uniform. Gone are the traditional white hat, jumper, and trousers that have been a part of the enlisted seabag since the early 1900s. These have been replaced by the officer-type uniform, with minor differences.

As with officers' uniforms, comfort, appearance, uniformity, and the reduction in the amount of uniforms required played a major role in the adoption of the new style uniform.

CHAPTER 5

UNIFORMS AND INSIGNIA

Every naval officer should be an authority on the grades, ratings, and insignia of the Navy. He also should be able to recognize and know the meaning of most of the insignia worn by other branches of the Armed Forces.

This chapter describes the types of uniforms and corps/grade devices of naval officers and midshipmen, and the uniforms, rating insignia, and distinguishing marks of enlisted personnel in the Navy. Included are comparisons of rank/rate/grade insignia of all service members.

OFFICER PERSONNEL

As in other branches of the armed services, an officer of the Navy takes precedence according to his grade, and within the grade according to the date of appointment to that grade. Normally, officers below him in grade and those appointed to his grade at a later date than his appointment are junior to him. Although the word "rank" often is used interchangeably with "grade," this is incorrect. An officer holds a grade (captain, commander, etc.); he outRANKS a junior; or he RANKS from the date of appointment to his grade (date of rank).

An officer can be either a commissioned or warrant officer. The former (including a chief (commissioned) warrant officer) holds a commission granted by the President and signed by the Secretary of the Navy. A noncommissioned warrant officer derives his authority from a warrant granted by the Secretary of the Navy.

Naval officers' grades as they correspond to those of the other services are as follows:

<u>Navy</u>	<u>Army, Marine Corps, Air Force</u>
Admiral	General
Vice admiral	Lieutenant general
Rear admiral	Major general
Commodore*	Brigadier general
Captain	Colonel
Commander	Lieutenant colonel
Lieutenant commander	Major
Lieutenant	Captain
Lieutenant (junior grade)	First lieutenant
Ensign	Second lieutenant
Chief warrant officer, W-4	Same as Navy
Chief warrant officer, W-3	
Chief warrant officer, W-2	
Warrant officer, W-1	

*During war or national emergency

Flag officer. Officers of the grade of commodore and above are known as flag officers; each has the privilege of flying a personal flag on the ship or station to which they are attached, the flag decorated with stars that indicate their grade are as follows:

Commodore	1 star
Rear admiral	2 stars
Vice admiral	3 stars
Admiral	4 stars

The personal flag of an officer of the line has a blue field with white stars and that of a staff corps officer a white field with blue stars.

Admiral. The title of admiral comes from the Arabic "amir-al-bahr," meaning ruler of the sea. The French and English used the title long before the discovery of America, but the grade was not established in the U.S. Navy until 1862 (along with commodore).

In 1944, Congress established the 5-star grade of fleet admiral (and, incidentally, a comparable grade of General of the Army) to which were appointed Admirals William D. Leahy, Ernest J. King, Chester W. Nimitz, and William F. Halsey, Jr. Authority for the grade of fleet admiral no longer exists (it expired with the death of Admiral Nimitz in 1966). Its reestablishment will require another act of Congress.

Commodore. Until 1862 all captains in the United States Navy commanding or having commanded squadrons (which could be any number of ships more than one) were customarily addressed as commodore, though never commissioned as such. Commodore became a fixed grade in 1862, then was abandoned as a grade on the active list in 1899. In 1943 the grade of commodore was reestablished for temporary service in time of war or national emergency. "Commodore" is still retained as a courtesy title for commanders of ship squadrons and divisions.

Line and staff corps officers. Naval officers who are eligible to assume command of ships (and stations) are designated unrestricted line officers, being in line of command. Other officers are members of the several staff corps or are specialists in various fields.

At present there are eight staff corps, listed below in order of precedence:

Medical,
Supply,
Chaplain,
Civil Engineer,

Judge Advocate General's,
Dental,
Medical Service, and
Nurse.

(The Medical Corps consists entirely of physicians and surgeons. The Medical Service Corps is made up of pharmacists, medical administrative officers, medical technologists, and so on.)

While commissioned members of staff corps have all the rights and privileges of their grades, they are not eligible to assume command except in their own corps. A medical officer, for example, can command only a medical activity such as a hospital or dispensary. Staff corps officers should not be confused with staff officers, who are line or staff corps officers assigned to staffs of high-ranking officers.

UNIFORMS AND CORPS DEVICES

The following uniforms (see figure 5-1) are worn by naval officers: service dress, evening dress, full dress, dinner dress, working and tropical. The aviation winter working uniform (forestry green) is worn by naval aviators and chief petty officers serving in pilot status, and also by naval flight officers; it may be worn by other officers and chief petty officers attached to aviation commands. Full details regarding uniforms and insignia are set forth in U.S. Navy Uniform Regulations. The commandants of naval districts prescribe the uniform of the day to be worn in their respective districts and the senior officers present afloat and at shore stations outside the districts prescribe the uniform of the day for personnel of their commands.

An officer's grade is indicated by the gold sleeve stripes on blue coats; by black sleeve stripes on forestry green coats; by shoulder marks on white coats, white tropical shirts, and blue overcoats; and by metal grade insignia on the shoulder straps of blue raincoats, aviation winter working overcoats, and on collars of khaki and blue flannel shirts. Above the stripes (inboard of them on

shoulder boards), line officers wear a five-pointed gold star; staff corps officers wear the appropriate corps device as shown in figure 5-2.

Line and corps devices for commissioned warrant and warrant officers appear in figure 5-3.

Stripes indicating officers' grades are shown in figure 5-4. Flag officers' sleeve markings consist of at least one 2-inch stripe (on each sleeve, of course). Relative seniority by grade is indicated by the addition of 1/2-inch stripes above the 2-inch band—one stripe for rear admiral, two for vice admiral,

and three for full admiral. (Although the grade of FADM no longer exists, it is included in figure 5-4 for informational purposes.) As can be seen, the grades of other commissioned officers are indicated by the size and number of 1/2- and 1/4-inch stripes. All warrant officers wear one broken stripe: 1/2-inch for commissioned warrants and 1/4-inch for warrant officer W-1.

Officers wear pin-on grade-indicating devices on the collars of khaki and blue flannel shirts. Line officers wear the device on both collar tips. Staff corps officers wear the pin-on device of grade on the right collar tip and the corps device on the left.

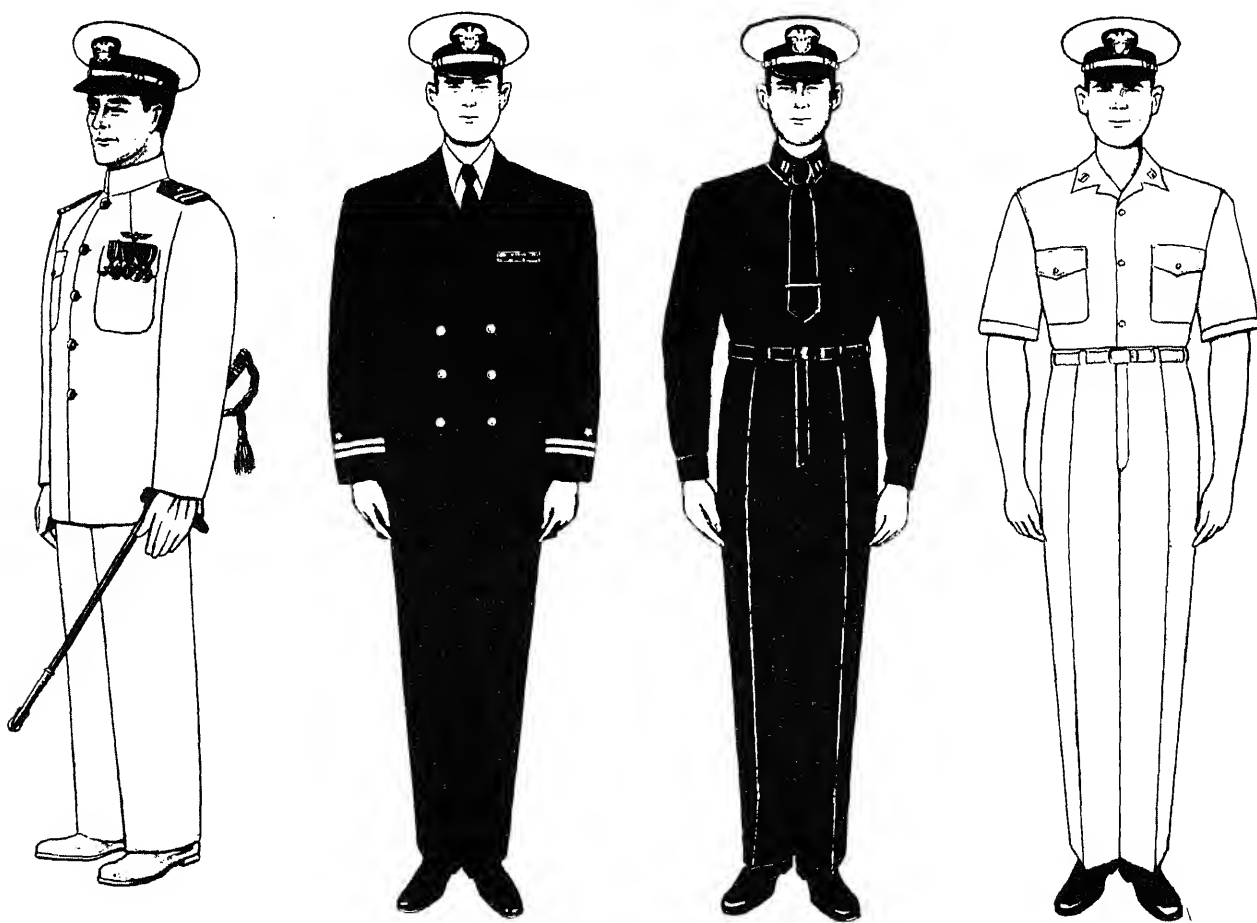


Figure 5-1.—Basic male officers' uniforms: full dress white, service dress blue, working blue, and working khaki.

122.7



* Also leader of U. S. Naval Academy Band and those commissioned in the field of music

Figure 5-2.—Commissioned officers' line and corps devices.

The grade devices are given below; they are similar in form to grade devices worn by Army, Air Force, and Marine officers.

<u>Grade</u>	<u>Pin-on device</u>	<u>Grade</u>	<u>Pin-on device</u>
Admiral	Four silver stars	Lieutenant	Two silver bars
Vice admiral	Three silver stars	Lieutenant (jg)	One silver bar
Rear admiral	Two silver stars	Ensign	One gold bar
Commodore	One silver star	Commissioned warrant and warrant officer	Dark blue bar with silver (W-4, W-3) or gold (W-2, W-1) breaks
Captain	Silver spread eagle		
Commander	Silver oak leaf		
Lieutenant commander	Gold oak leaf		

Three types of caps are authorized for wear: combination, garrison, and working. The combination cap has a stiff visor and rigid standing front. It is worn with detachable blue, white, khaki, or green (


BOATSWAIN  CROSSED FOUL ANCHORS	OPERATIONS TECHNICIAN  SHIP'S HELM CIRCUMSCRIBING ARROW AND SPARK	SURFACE ORDNANCE TECHNICIAN OR ORDNANCE CONTROL TECHNICIAN  FLAMING SPHERICAL SHELL	UNDERWATER ORDNANCE TECHNICIAN  TORPEDO	SHIP'S CLERK  CROSSED QUILL PENS	
ELECTRONICS TECHNICIAN OR NAVAL COMMUNICATOR  FOUR BOLTS OF LIGHTNING	ELECTRONICS TECHNICIAN  A HELIUM ATOM	MACHINIST  THREE-BLADED PROPELLER	SHIP REPAIR TECHNICIAN  CARPENTER'S SQUARE	ELECTRICIAN  GLOBE OF THE WORLD	AVIATION BOATSWAIN  CROSSED FOUL ANCHORS, WINGED
AVIATION ORDNANCE TECHNICIAN  FLAMING SPHERICAL SHELL, WINGED	AVIATION MAINTENANCE TECHNICIAN  TWO-BLADED PROPELLER, WINGED	AVIATION ELECTRONICS TECHNICIAN  HELIUM ATOM, WINGED	AEROGRAPHER  WINGED CIRCLE, ARROW THROUGH CENTER	PHOTOGRAPHER  CAMERA	
BANDMASTER  LYRE	AVIATION CONTROL TECHNICIAN  WINGED MICROPHONE	COMMUNICATIONS TECHNICIAN  CROSSED QUILL PEN AND SPARK	SUPPLY CLERK  SPRIG OF THREE OAK LEAVES	CIVIL ENGINEER CORPS  TWO GOLD SPRIGS OF TWO OAK LEAVES EACH, SILVER ACORN IN EACH SPRIG	
MEDICAL SERVICE OR DENTAL SERVICE  CADUCEUS	AIR INTELLIGENCE TECHNICIAN  STEREOSCOPE SUPERIMPOSED ON LIGHT RAYS PENETRATING A LENS	DATA PROCESSING TECHNICIAN  QUILL PEN SUPERIMPOSED ON GEAR	EXPLOSIVE ORDNANCE DISPOSAL TECHNICIAN  MINE SUPERIMPOSED ON CROSSED BOMB AND TORPEDO	AVIATION ANTISUBMARINE WARFARE OPERATOR  TWO CROSSED ELECTRON ORBITS, WINGED, WITH LIGHTNING BOLT PASSING TOWARD WAVES	

Figure 5-3.—Warrant officers' line and corps devices.

WARRANT					COMMISSIONED									
W-1	W-2	W-3	W-4		O-1	O-2	O-3	O-4	O-5	O-6	O-7	O-7 - 0.8	O-8	O-9 - 0.10
<div>NAVY</div> <div> WARRANT OFFICER W 1</div>	<div> CHIEF WARRANT OFFICER W 2</div>	<div> CHIEF WARRANT OFFICER W 3</div>	<div> CHIEF WARRANT OFFICER W 4</div>		<div> ENSIGN</div>	<div> LIEUTENANT JUNIOR GRADE</div>	<div> LIEUTENANT</div>	<div> LIEUTENANT COMMANDER</div>	<div> COMMANDER</div>	<div> CAPTAIN</div>	<div> COMMODORE</div>	<div> REAR ADMIRAL</div>	<div> VICE ADMIRAL</div>	<div> ADMIRAL</div>
<div>MARINE CORPS</div> <div> WARRANT OFFICER W 1</div>	<div> CHIEF WARRANT OFFICER W 2</div>	<div> CHIEF WARRANT OFFICER W 3</div>	<div> CHIEF WARRANT OFFICER W 4</div>		<div> SECOND LIEUTENANT</div>	<div> FIRST LIEUTENANT</div>	<div> CAPTAIN</div>	<div> MAJOR</div>	<div> LIEUTENANT COLONEL</div>	<div> COLONEL</div>	<div> BRIGADIER GENERAL</div>	<div> MAJOR GENERAL</div>	<div> LIEUTENANT GENERAL</div>	<div> GENERAL</div>
<div>ARMY</div> <div> WARRANT OFFICER W 1</div>	<div> CHIEF WARRANT OFFICER W 2</div>	<div> CHIEF WARRANT OFFICER W 3</div>	<div> CHIEF WARRANT OFFICER W 4</div>		<div> SECOND LIEUTENANT</div>	<div> FIRST LIEUTENANT</div>	<div> CAPTAIN</div>	<div> MAJOR</div>	<div> LIEUTENANT COLONEL</div>	<div> COLONEL</div>	<div> BRIGADIER GENERAL</div>	<div> MAJOR GENERAL</div>	<div> LIEUTENANT GENERAL</div>	<div> GENERAL</div>
<div>AIR FORCE</div> <div> WARRANT OFFICER W 1</div>	<div> CHIEF WARRANT OFFICER W 2</div>	<div> CHIEF WARRANT OFFICER W 3</div>	<div> CHIEF WARRANT OFFICER W 4</div>		<div> SECOND LIEUTENANT</div>	<div> LIEUTENANT</div>	<div> CAPTAIN</div>	<div> MAJOR</div>	<div> LIEUTENANT COLONEL</div>	<div> COLONEL</div>	<div> BRIGADIER GENERAL</div>	<div> MAJOR GENERAL</div>	<div> LIEUTENANT GENERAL</div>	<div> GENERAL</div>

Figure 5-4.—Insignia of officers of the Armed Forces of the United States.

aviation personnel) cap cover. The blue is a water-repellent rain cover that may be worn over any of the other covers; otherwise the colors match the appropriate uniform, except that the white cover is worn with both blue and white uniforms. The garrison and working caps are optional items. The former are either green or khaki. The working cap may be worn with any working uniform except aviation green.

On combination caps worn by officers below the grade of commander, the visor is plain black. Captains' and commanders' visors are partly fretted by gold embroidery; flag officers' caps bear full visor embroidery. Except for warrant officers (W-1), cap devices consist of two crossed fouled anchors with a silver shield, surmounted by a spread eagle. The W-1 cap device consists simply of crossed anchors. Chin straps are faced with gold lace.

On the garrison cap, the grade device is worn on the right side, near the front, and a miniature form of the cap device is worn on the left side.

AIGUILLETES AND MOURNING BADGES

Aiguilletes are worn by officers when on duty as personal aide to the President; aide to the Vice President; aide at the White House; aide to the Secretary of Defense; aide to the Secretary, Under Secretary, and Assistant Secretaries of the Navy; aide to the Deputy or Assistant Secretaries of Defense; aides to flag officers; by naval attaches; and aides to top ranking representatives of foreign nations visiting the United States. They may be worn on official occasions by officers appointed as aides on the staff of a governor of a state or territory. Aides to the President, to the Vice President, at the White House, and to foreign heads of state wear them on the right side; all others on the left. With overcoats they are worn on the outside.

Service aiguilletes consist of loops of aiguillette cord fastened on the shoulder and going around the shoulder just under the

armpit. The aiguillette cord is gold with blue silk insertion, except that aiguilletes for the aide to the President are gold cord without the insertion. The number of loops indicates the wearer's status as shown in figure 5-5.

Dress aiguilletes consist of two single plaits of aiguillette cord with two loops. At the termination of the plaits there are approximately 3 inches of plain cord, at the end of which are secured two gilt metal pencils, approximately 3-1/2 inches long, mounted with two silver anchors. They are worn on service or dress uniforms by aides on occasion of ceremony and on social occasions when prescribed.

Aiguilletes are worn by USNA midshipmen as prescribed by the Commandant of Midshipmen; they are pinned on the shoulder at the arm seam.

Mourning badges are of black crepe, 3 inches wide, and are worn on the left sleeve of the outer coat, halfway between the shoulder and elbow. Officers are required to wear mourning badges when serving as honorary pallbearers at military funerals, when attending military funerals in an official capacity, and at other prescribed times. Those attending civilian funerals may wear mourning badges if desired.

WOMEN'S UNIFORMS

Uniforms for women in the Navy (figure 5-6) have designations similar to those of male personnel, such as service dress blue and service dress white. Women also wear a service dress light blue as a summer uniform.

Cap and sleeve insignia for women officers are identical to those of male officers. Sleeve stripes and rating badges for enlisted women are the same as for male personnel except that they are smaller.

UNITED STATES COAST GUARD

The distinguishing mark of all Coast Guard uniforms is the Coast Guard shield.

SERVICE AIGUILLETTES



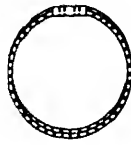
AIDE TO THE
PRESIDENT
(4 LOOPS)



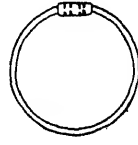
AIDE TO THE
VICE PRESIDENT;
AIDE TO ADMIRAL
OR OFFICIAL OF
HIGHER RANK;
NAVAL ATTACHÉS
AND ASSISTANT
NAVAL ATTACHÉS
(4 LOOPS)



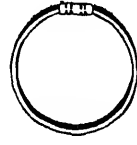
AIDE TO VICE
ADMIRAL
(3 LOOPS)



AIDE TO A REAR
ADMIRAL OR OFFICIAL
OF LOWER RANK; TO A
GOVERNOR OF A STATE
OR TERRITORY
(2 LOOPS)

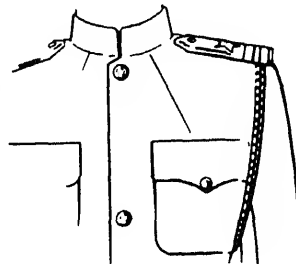
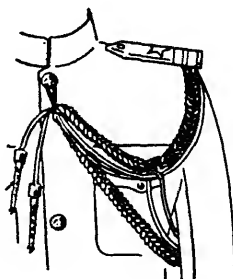
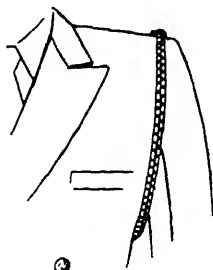
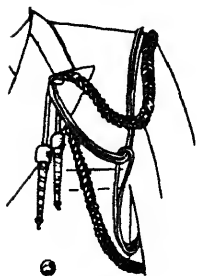


USNA -
HOP COMMITTEE
MEMBERS
(1 LOOP)



USNA -
MIDSHIPMEN
OFFICERS OF
THE WATCH
(2 LOOPS)

MANNER OF WEARING



134.32

Figure 5-5.—The number of loops in the aiguillettes indicates the status of the wearer.

This appears above the stripes on the sleeves and shoulder markings of commissioned officers. It accompanies the specialty device on uniforms of warrant officers and is worn on the right sleeve of the enlisted man's uniform. It is white on the blues and blue on the whites.

The Coast Guard officer's cap device shows a gold eagle perched on a horizontal anchor. The shield, centered on the eagle's breast, is of silver.

Although the Coast Guard uniform is of the same basic design as the Navy, there are some notable differences. The blue uniform is

of a lighter color and is worn with a pale blue shirt.

NAVAL ACADEMY MIDSHIPMEN

Naval Academy midshipmen are classified as officers of the line, but are officers only in a qualified sense. They rank between warrant officers and chief warrant officers. Their uniforms are: service dress, full dress, dinner dress, working, infantry, and tropical. Their service dress and working uniforms are similar to officers.



134.33

Figure 5-6.—Basic women's uniforms: service dress blue, service dress light blue, summer blue, and dungaree.

On the combination cap a 3/8-inch gold chin strap and a gold fouled anchor device are worn. A small gold fouled anchor device is worn on the left side of the garrison cap.

A gold anchor pin-on device is worn on each lapel of the blue service blouse. Outstanding midshipmen of each class wear a pin-on gold star above each collar anchor on the full dress and service dress blue uniform. Class insignia (figure 5-7A) are as follows:

First class: One horizontal gold stripe around each sleeve.

Second class: Two diagonal gold stripes on the left sleeve only. The stripes are

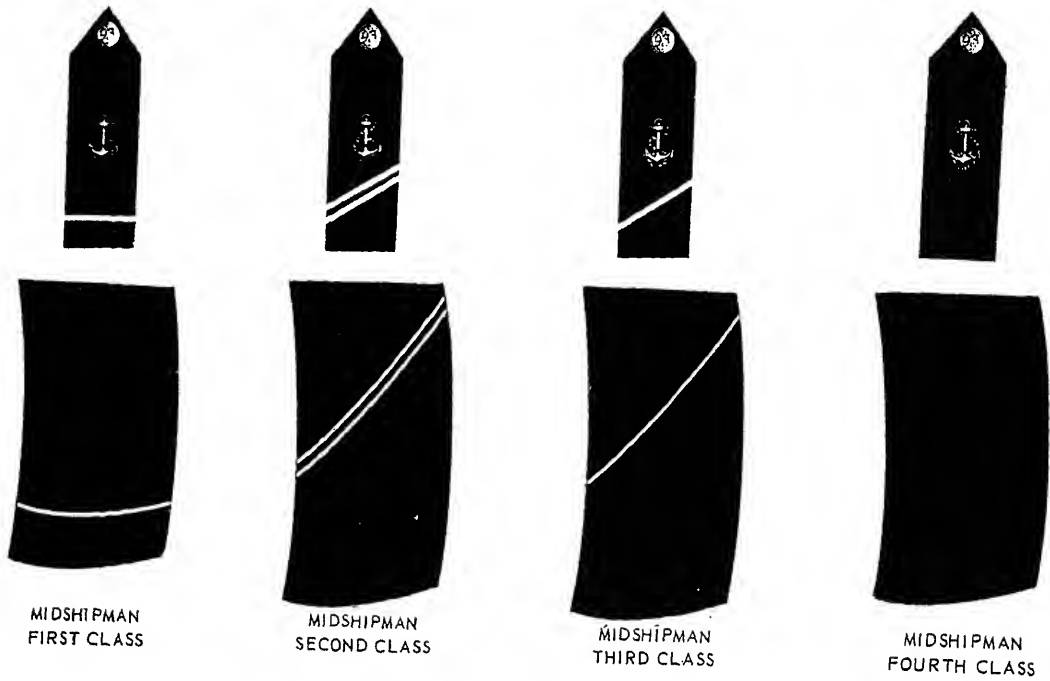
between the elbow and cuff with the higher end along the rear seam and lower end to the front.

Third class: One diagonal gold stripe on the left sleeve.

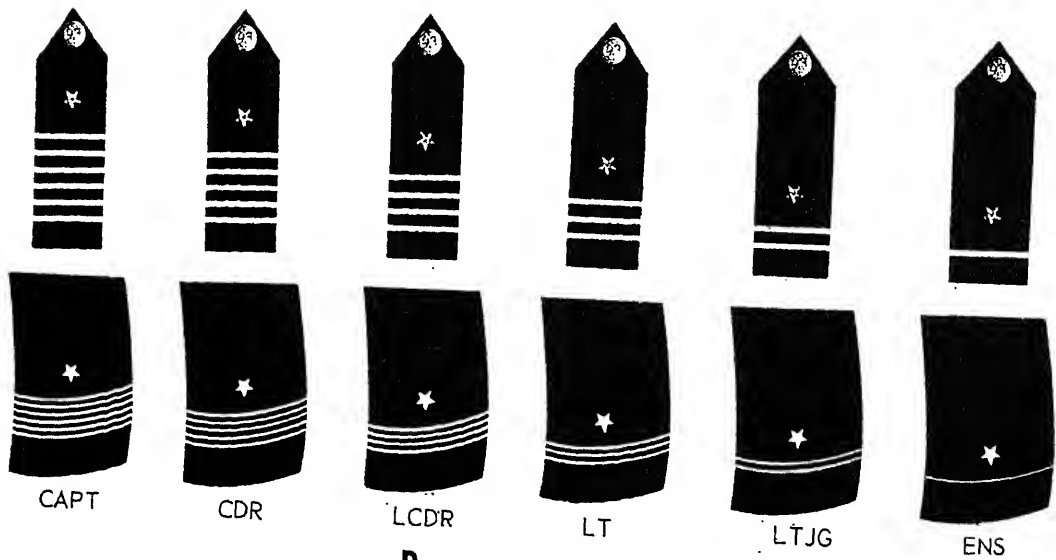
Fourth class: No sleeve stripe.

Shirt collar insignia. Shirt collar insignia consist of gold fouled anchors, eagle and bar (striper) insignia, to be worn on collar tips of blue drill shirts, khaki shirts, and green utilities.

- Midshipmen first class of other than officer rank shall wear the eagle insignia on both collars.



A CLASS STRIPES



B RANK STRIPES

Figure 5-7.—USNA midshipmen class/rank stripes and shoulder marks.

- Midshipmen second class shall wear the anchor insignia on both collars.
- Midshipmen third class shall wear the anchor insignia on the right collar only.
- Midshipmen fourth class shall wear no insignia on the collar.
- Midshipmen officers shall wear from one to six bars representing the ranks of Midshipman Ensign through Midshipman Captain.

In lieu of sleeve stripes denoting class, midshipmen officers of the first class wear gold stripes to denote grade as shown in figure 5-7B.

The uniforms of NROTC midshipmen are similar to the uniforms of officers and USNA midshipmen. The variation in grade stripes is shown in figure 5-8.

Officer candidates wear uniforms similar to officer service dress, working blue, and

khaki uniforms. First and second classmen wear corps or line insignia on service dress uniforms and gold anchor pin-on devices on each collar tip of the blue and khaki shirts. Third and fourth classmen wear no class insignia. Grade stripes for officer candidates are shown in figure 5-8.

ENLISTED PERSONNEL

In the enlisted branch, a field of work or an occupation is called a rating; levels within the rating are rates. In the case of a Boatswain's Mate second class (BM2), for example, Boatswain's Mate is the rating and second class is the rate.

A newcomer without previous naval experience normally enters the service as a recruit in pay grade E-1, the basic pay grade in the Armed Forces' rating structure. From recruit rate he/she begins to absorb training in a broad occupational group and to advance in rate or rating when qualified. After completing recruit training and qualifying for

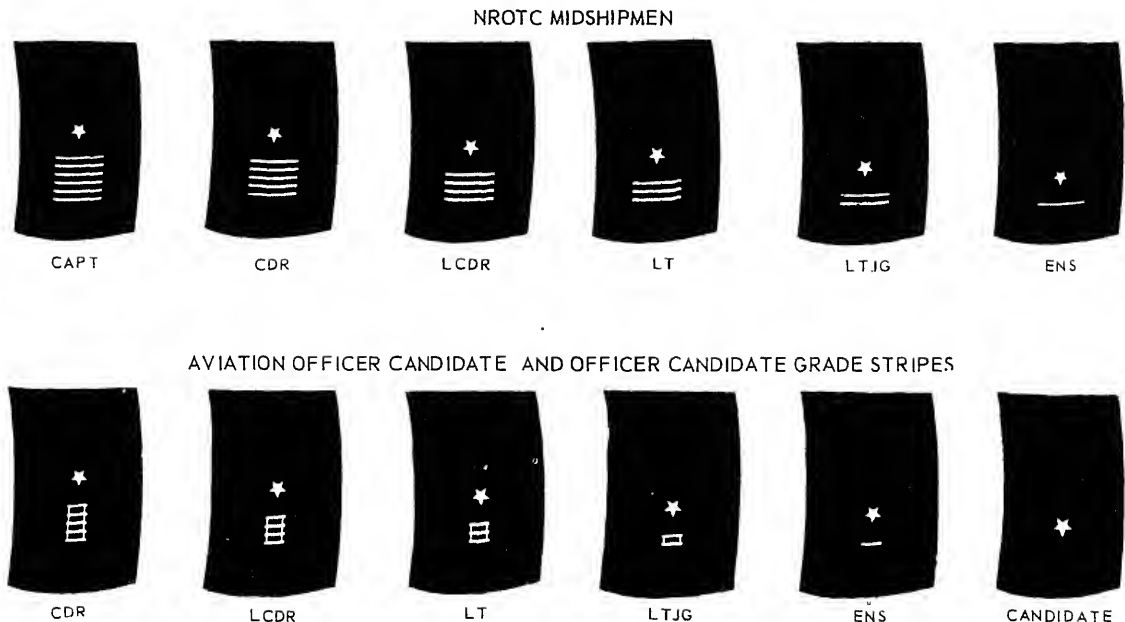


Figure 5-8.—Grade stripes for NROTC midshipmen and officer candidates.

advancement to the apprentice level (pay grade E-2) he/she must again qualify for the next higher level (pay grade E-3). After advancing to Seaman (or Fireman, Airman, or other distinct pay grade E-3 rate), he/she attempts to qualify for the lowest petty officer rate of a particular rating, depending on his/her ability and inclinations. It is at this level that an E-3 begins the occupational career that will be followed for the remainder of his/her naval service. There are within most ratings, specialties that can be chosen from. For example, in the Gunner's Mate rating there are Gunner's Mate Guns and Gunner's Mate Missiles. Normally, once advanced to that rating, the person specializes only in that field.

Following is the normal path of advancement by pay grades:

<u>General title</u>	<u>Pay grade</u>
Seaman	E-1
Fireman	
Airman	
Construction	
Hospital	
Dental	E-2
Seaman	
Fireman	
etc.	
Seaman	E-3
Fireman	
Airman	
Constructionman	
Hospitalman	
Dentalman	E-4
Petty officer, third class	
Petty officer, second class	
Petty officer, first class	
Chief petty officer	
Senior CPO	E-8
Master CPO	

The comparison by pay grade for personnel of the Navy, Marines, Army, and Air Force is shown in figure 5-9.

Let us trace the advancement of a typical enlisted naval careerist, Gaskins, who specializes in the occupational field of a Gunner's Mate Guns. Gaskins first enlists as a Seaman Recruit (SR). After receiving basic training at a recruit training center, he expresses interest in deck seamanship. Upon completion of his training, he is transferred to sea duty. Aboard ship he receives general training in seamanship and in time qualifies for advancement to Seaman Apprentice (SA), then to Seaman (SN).

Meantime, having demonstrated an interest in the rating of Gunner's Mate Guns, Gaskins is assigned to gunnery maintenance duties in the weapons department. Having shown himself proficient in that field of work, his commanding officer recommends to BUPERS that Gaskins be officially designated as a GMG striker. If the Bureau approves the recommendation, Gaskins, after meeting certain requirements as to length of time in service, course requirements, and his pay grade, may compete in Navywide examinations for advancement to Gunner's Mate third (GMG3). If successful, he then has recurring opportunities to compete for successive advancement to GMG2, GMG1, and Chief Gunner's Mate. Thereafter he becomes eligible to compete for advancement to senior and master chief petty officer, respectively, the latter being the highest enlisted rate.

Subject to standard instructions, lateral changes from one group to another are allowed quite freely in the lower pay grades before a person has been intensively trained in one particular field. This allows time to find the choice of work in the Navy. However, once a person has advanced to a senior petty officer level, lateral changes are seldom permitted.

UNIFORMS

July, 1975 marked the beginning of an evolutionary change to a one-uniform Navy. The basic uniform that was adopted for all members of the naval service symbolizes an important theme, "One Navy, united in purpose, striving for common goals."

Chapter 5—UNIFORMS AND INSIGNIA











































		ENLISTED									
PAY GRADE	E-1	E-2	E-3	E-4	E-5	E-6	E-7	E-8	E-9	E-9	
NAVY	 SEAMAN RECRUIT	 SEAMAN APPRENTICE	 SEAMAN	 PETTY OFFICER THIRD CLASS	 PETTY OFFICER SECOND CLASS	 PETTY OFFICER FIRST CLASS	 CHIEF PETTY OFFICER	 SENIOR CHIEF PETTY OFFICER	 MASTER CHIEF PETTY OFFICER	 MASTER CHIEF PETTY OFFICER OF THE NAVY	
MARINES	PRIVATE	 PRIVATE FIRST CLASS	 LANCE CORPORAL	 CORPORAL	 SERGEANT	 STAFF SERGEANT	 GUNNERY SERGEANT	 1ST SGT	 SGT MAJOR	 SGT MAJOR OF THE MARINE CORPS	
ARMY	PRIVATE	 PRIVATE	 PRIVATE FIRST CLASS	 CORPORAL	 SERGEANT	 STAFF SERGEANT	 SERGEANT FIRST CLASS	 1ST SGT	 SERGEANT MAJOR	 SERGEANT MAJOR OF THE ARMY	
				 SPECIALIST 4	 SPECIALIST 5	 SPECIALIST 6	 SPECIALIST 7	 MSGT			
AIR FORCE	AIRMAN BASIC	 AIRMAN	 AIRMAN FIRST CLASS	 SERGEANT	 STAFF SERGEANT	 TECHNICAL SERGEANT	 MASTER SERGEANT	 SENIOR MASTER SERGEANT	 CHIEF MASTER SERGEANT	 CHIEF MASTER SERGEANT OF THE AIR FORCE	

Figure 5-9.—Insignia of U.S. Armed Forces enlisted personnel.

The jumper style uniform, worn since the turn of the century, with few modifications, is no longer worn.

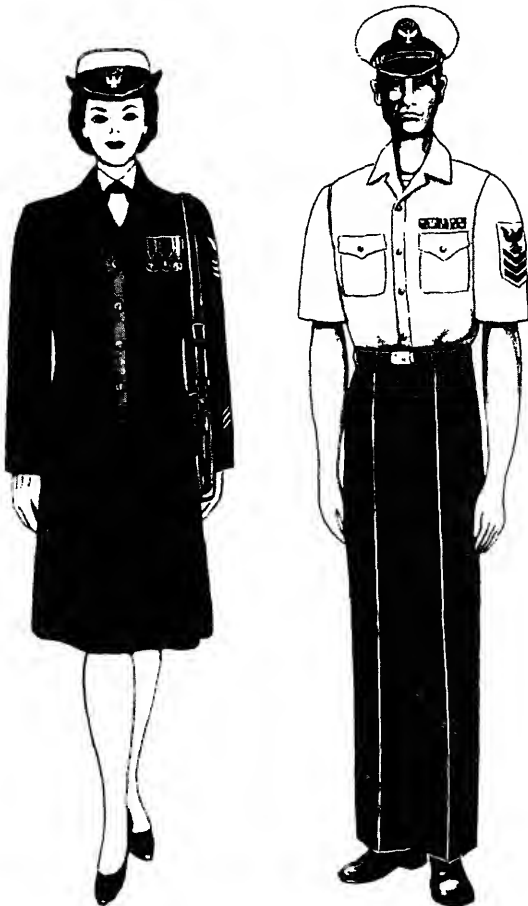
Uniforms for enlisted, like officers, are of the distinctive and traditional double-breasted coat and tie style uniform. The differences being in identifying insignia.

Chief petty officers wear a visor cap of the junior officer type; the chin strap is black leather and the insignia is a gold fouled anchor on which are superimposed the silver letters USN. Rates of senior and master CPOs are reflected by the number of stars atop the anchor: 1 star for senior and 2 for master



134.37

Figure 5-11.—Uniform for CPO.



134.36

Figure 5-10.—Typical uniforms for enlisted below CPO.

(with a third star for Master Chief Petty Officer of the Navy). Enlisted below the rate of CPO wear an identical cap with the exception of the insignia. It consists of an oxidized silver colored spread eagle with oxidized silver colored block letters "USN" superimposed horizontally between the wing tips and centered above the eagle's head. The buttons on the service dress blue coat are also of the oxidized silver color.

As shown in figures 5-10 and 5-11, a petty officer wears, midway between shoulder and elbow of the left sleeve, a rating badge consisting of a perched eagle, the specialty mark of his or her rating (see figure 5-12),

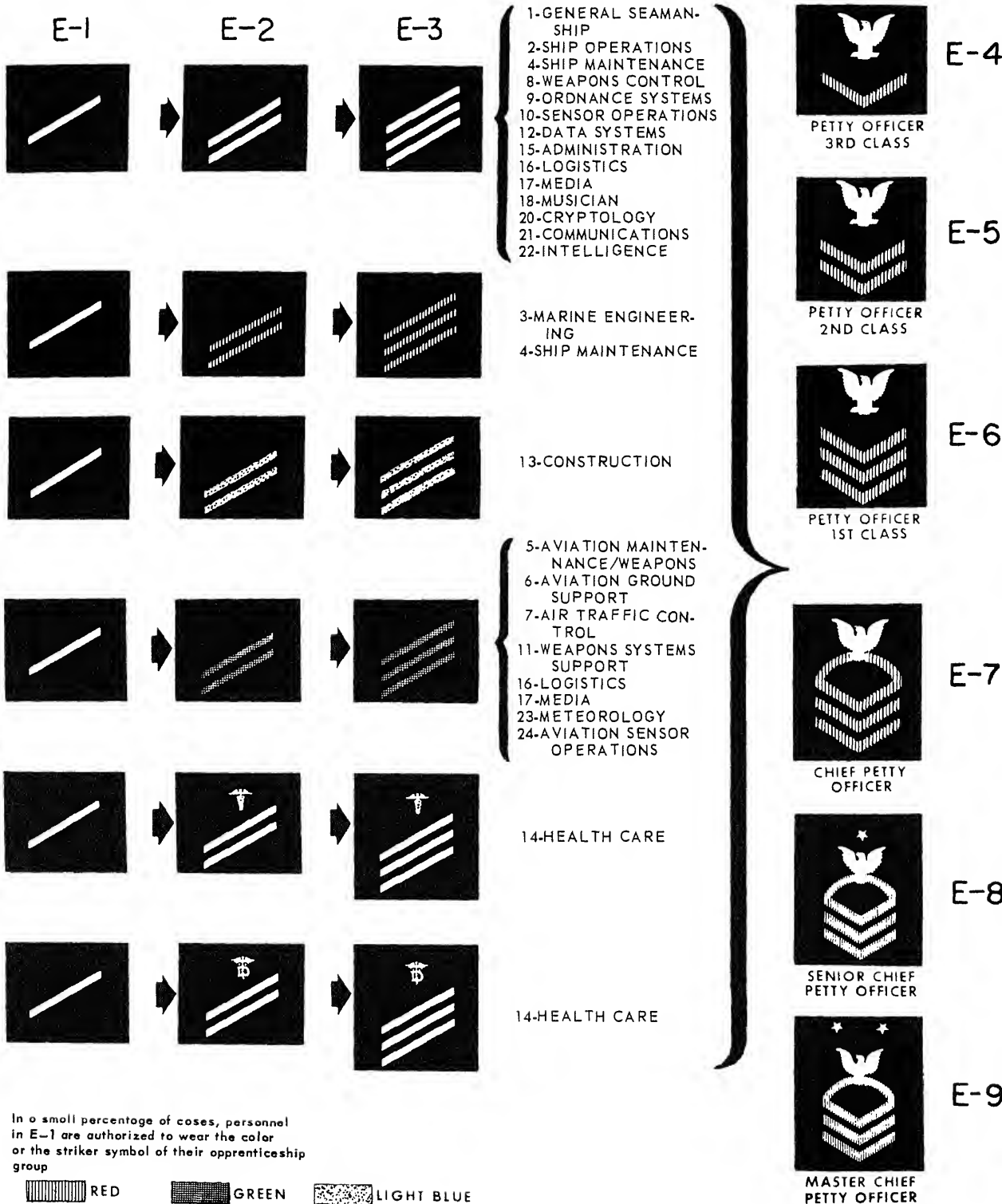


Figure 5-12.—Enlisted rate and rating insignia.

OCCUPATIONAL FIELD 1 GENERAL SEAMANSHIP OCCUPATIONAL FIELD 2 SHIP OPERATIONS OCCUPATIONAL FIELD 3 MARINE ENGINEERING OCCUPATIONAL FIELD 4 SHIP MAINTENANCE OCCUPATIONAL FIELD 5 AVIATION MAINTENANCE WEAPONS	 BM BOATSWAIN'S MATE	 SM SIGNALMAN	OCCUPATIONAL FIELD 6 AVIATION GROUND SUPPORT AB AVIATION BOATSWAIN'S MATE	 AS AVIATION SUPPORT EQUIPMENT TECHNICIAN
	 OS OPERATIONS SPECIALIST	 QM QUARTERMASTER	OCCUPATIONAL FIELD 7 AIR TRAFFIC CONTROL AC AIR CONTROLMAN	
	 BR BOILERMAKER	 BT BOILER TECHNICIAN	 EM ELECTRICIAN'S MATE	 EN ENGINEMAN
	 IC INTERIOR COMMUNICATIONS ELECTRICIAN	 MM MACHINIST'S MATE	OCCUPATIONAL FIELD 8 WEAPONS CONTROL ET ELECTRONICS TECHNICIAN	 FT FIRE CONTROL TECHNICIAN
	 HT HULL MAINTENANCE TECHNICIAN	 IM INSTRUMENTMAN	 MR MACHINERY REPAIRMAN	 ML MOlder
OCCUPATIONAL FIELD 9 ORDNANCE SYSTEMS OCCUPATIONAL FIELD 10 SENSOR OPERATIONS OCCUPATIONAL FIELD 11 WEAPONS SYSTEMS SUPPORT	 GM GUNNER'S MATE	 MN MINEMAN	 AT AVIATION ELECTRONICS TECHNICIAN	 TM TORPEDOMAN MATE
	 OM OPTICMAN	 PM PATTERNMAKER	 EW ELECTRONIC WARFARE TECHNICIAN	 OT OCEAN SYSTEMS TECHNICIAN
	 PR SURVIVAL AIRCREW EQUIPMENTMAN	 AX AVIATION ANTISUBMARINE WARFARE TECHNICIAN	 AE AVIATION ELECTRICIAN'S MATE	 ST SONAR TECHNICIAN
	 AQ AVIATION FIRE CONTROL TECHNICIAN	 AD AVIATION MACHINIST'S MATE	 AZ AVIATION MAINTENANCE ADMINISTRATIONMAN	 AO AVIATION ORDNANCEMAN
			 AM AVIATION STRUCTURAL MECHANIC	 TD TRADESMAN

Figure 5-12.—Enlisted rate and rating insignia (continued).
















































OCCUPATIONAL FIELD 12 DATA SYSTEMS	<div>   </div> <div> DP DATA PROCESSING TECHNICIAN OS DATA SYSTEMS TECHNICIAN </div>	OCCUPATIONAL FIELD 17 MEDIA	<div>     </div> <div> DM DRAFTSMAN ILLUSTRATOR JO JOURNALIST LI LITHOGRAPHER PH PHOTOGRAPHER'S MATE </div>
OCCUPATIONAL FIELD 13 CONSTRUCTION	<div>     </div> <div> BU BUILDER CE CONSTRUCTION ELECTRICIAN CM CONSTRUCTION MECHANIC EA ENGINEERING AID </div> <div>    </div> <div> EO EQUIPMENT OPRATOR SW STEELWORKER UT UTILITIESMAN </div>	OCCUPATIONAL FIELD 18 MUSICIAN	<div>  </div> <div> MU MUSICIAN </div>
OCCUPATIONAL FIELD 14 HEALTH CARE	<div>   </div> <div> DT DENTAL TECHNICIAN HM HOSPITAL CORPSMAN </div>	OCCUPATIONAL FIELD 19 MASTER-AT-ARMS	<div>  </div> <div> MA MASTER AT ARMS </div>
OCCUPATIONAL FIELD 15 ADMINISTRATION	<div>    </div> <div> LN LEGALMAN NC NAVY COUNSELORS PN PERSONNELMAN </div> <div>   </div> <div> PC POSTAL CLERK YN YEOMAN </div>	OCCUPATIONAL FIELD 20 CRYPTOLOGY	<div>  </div> <div> CT COMMUNICATIONS TECHNICIAN </div>
OCCUPATIONAL FIELD 15 ADMINISTRATION	<div>    </div> <div> LN LEGALMAN NC NAVY COUNSELORS PN PERSONNELMAN </div> <div>   </div> <div> PC POSTAL CLERK YN YEOMAN </div>	OCCUPATIONAL FIELD 21 COMMUNICATIONS	<div>  </div> <div> RM RADIO MAN </div>
OCCUPATIONAL FIELD 16 LOGISTICS	<div>    </div> <div> AK AVIATION STOREKEEPER DK DISBURING CLERK MS MESS MANAGEMENT SPECIALIST </div> <div>   </div> <div> SH SHIP'S SERVICEMAN SK STOREKEEPER </div>	OCCUPATIONAL FIELD 22 INTELLIGENCE	<div>  </div> <div> IS INTELLIGENCE SPECIALIST </div>
OCCUPATIONAL FIELD 16 LOGISTICS	<div>    </div> <div> AK AVIATION STOREKEEPER DK DISBURING CLERK MS MESS MANAGEMENT SPECIALIST </div> <div>   </div> <div> SH SHIP'S SERVICEMAN SK STOREKEEPER </div>	OCCUPATIONAL FIELD 23 METEOROLOGY	<div>  </div> <div> AG AEROGRAPHER'S MATE </div>
OCCUPATIONAL FIELD 16 LOGISTICS	<div>    </div> <div> AK AVIATION STOREKEEPER DK DISBURING CLERK MS MESS MANAGEMENT SPECIALIST </div> <div>   </div> <div> SH SHIP'S SERVICEMAN SK STOREKEEPER </div>	OCCUPATIONAL FIELD 24 AVIATION SENSOR OPERATIONS	<div>  </div> <div> AW AVIATION ANTISUBMARINE WARFARE OPERATOR </div>

Figure 5-12.—Enlisted rate and rating insignia (continued).

E-2		E-7-E-9	
Uniform	Badge	Uniform	Badge
Blue dress; peacoat	White	Blue	Silver
Blue undress working jacket	White		
White	Blue		
Summer Blue	Blue		
Dungaree	Blue (stencil)	Aviation green working	Blue

Figure 5-13.—Rating badges vary in color.

and chevrons indicating rate (except for a senior or master CPO whose rate is indicated by stars above the eagle of the E-7 rating badge, as in figure 5-9).

The color of a rating badge varies according to the uniform on which it is worn, as shown in figure 5-13. Chevrons are scarlet on blue uniforms and blue on all others, except that personnel who complete 12 years active naval service (broken or unbroken) in the Navy and Naval Reserve with good conduct wear gold chevrons with the blue uniform. (Scarlet chevrons are authorized for wear on winter working blues, E-4 to E-6, by personnel eligible for gold.) Chief petty officers wear miniature foul anchors on each collar tip of the khaki, working blue, and tropical white shirt.

Personnel below pay grade E-4 wear on the left sleeve, in place of the PO rating badge, 3-inch-long rectangular group-rate marks, as in figure 5-12. The color of the stripes, alone or in combination with specialty

or strikers' marks, indicates the general occupational group to which a nonrated man belongs, as follows:

Seaman	}	White stripes on blue uniforms, Navy blue on white
Hospitalman		
Dentalman		
Fireman		Red
Airman		Emerald green
Constructionman		Light blue

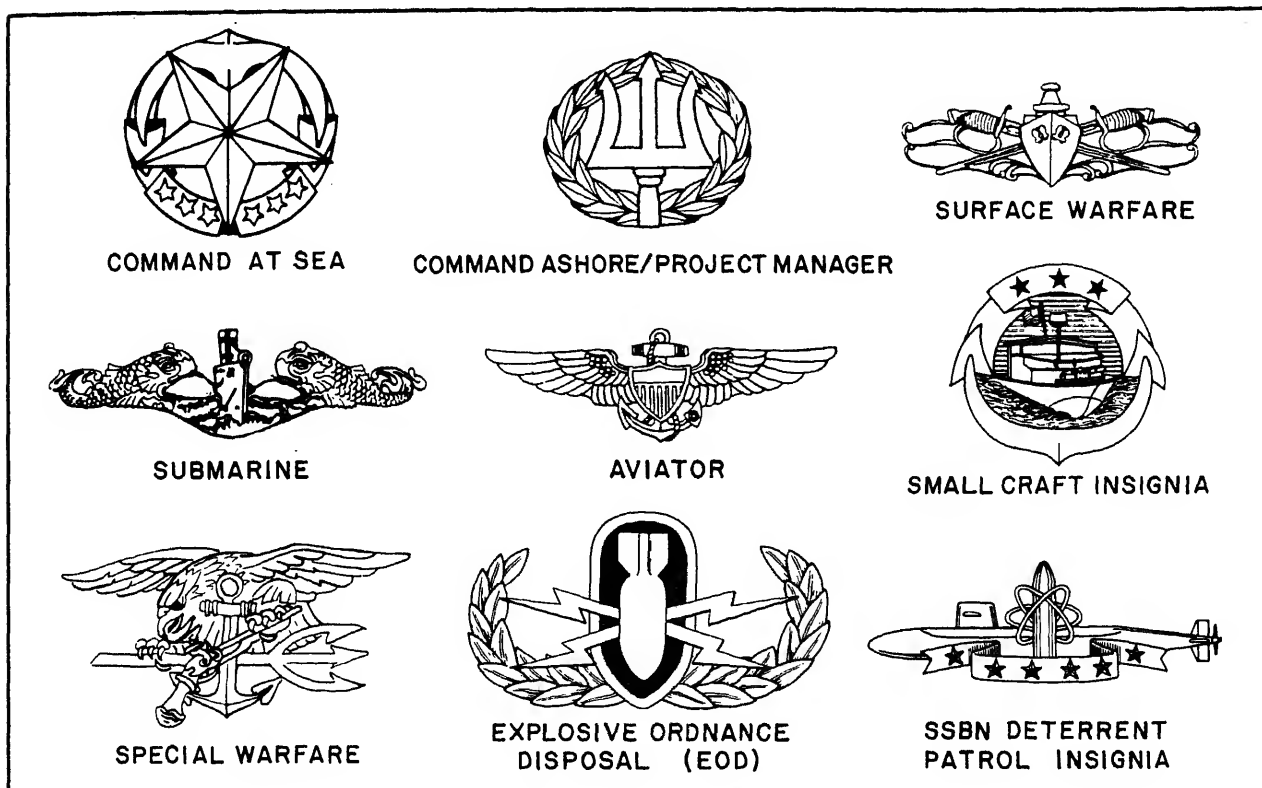
Appropriate petty officer specialty marks are centered above the group-rate mark by designated strikers.

Service stripes (hashmarks) are 7-inch-long diagonal stripes for CPOs and 5-inch-long diagonal stripes for E-6 and below. They are worn on the left lower arm with each stripe representing 4 years of service in the Navy, Marine Corps, Coast Guard, Army, Air Force, or Naval Reserve. The stripes are red when worn on blue uniforms and blue on others. When gold rating badges are worn, service stripes also are of gold.

MEDALS AND OTHER INSIGNIA

According to legend, Alexander the Great began the custom of awarding medals for heroism on the battlefield more than 2000 years ago. Thus there is a historic precedent for the medals worn by military personnel the world over. The bewildering array of little ribbons on the left breast of the dress uniform of veterans often seems quite puzzling to the newcomer in the Navy. These distinctive ribbons—and there are many of them—represent the medals which are too cumbersome to be worn at all times. They are worn in horizontal rows of three each, arranged in order of precedence from the center of the body to the left shoulder and from top row to bottom row. (See Appendix 6 for fuller discussion of decorations and medals.)

Other special insignia are those worn on the breast to indicate special qualifications or



3.11

Figure 5-14.—Breast insignia worn to indicate a special qualification or designation.

designations. Examples of these (figure 5-14) are:

Command at Sea insignia, worn by persons below flag rank who have, or had, command of commissioned ships or aviation squadrons at sea. Officers currently in command wear the insignia on the right breast. Those not presently in command, but who have held command, wear it on the left breast below any ribbons, medals, or other insignia.

Command Ashore/Project Manager insignia worn by officers below flag rank who have, or had, command ashore or served as project manager. It is worn in the same manner as the Command at Sea insignia.

Small Craft insignia, worn by personnel currently serving, or having previously served, as officer in charge of small craft. This

insignia is also worn in the same manner as the Command at Sea insignia.

The following insignia are worn on the left breast above any ribbons, medals, or insignia.

Surface Warfare insignia, worn by officers who have qualified in all phases of surface warfare.

Submarine insignia, worn by personnel who have qualified to serve in submarines. In addition to the basic insignia, other submarine insignia include those for submarine medical, engineering, and supply officers, and for all who participated successfully in combat patrols.

Aviation insignia, worn by personnel qualified to serve in flight. In addition to the

aviator insignia, insignia are worn by flight officers, flight surgeons, flight nurses, aircrewmen, and combat aircrewmen.

Special Warfare insignia, worn by personnel qualified in underwater and beach reconnaissance, demolition, and special warfare tactics. They are usually associated with underwater demolition or SEAL team detachments.

Explosive Ordnance Disposal insignia, worn by personnel who are qualified in the identification and safing of a full spectrum of ordnance produced by the U.S., our allies and enemies.

SSBN Deterrent Patrol insignia, worn by personnel who successfully complete a patrol on a Fleet Ballistic Missile submarine. Gold stars are mounted on the scroll to indicate

each successful patrol subsequent to that for which the original insignia was awarded.

Most insignia that are worn by officers and enlisted personnel are identical with the exception of color. Those worn by officers are of a gold color while enlisted's are silver. Examples of some of these are submarine, small craft, and explosive ordnance disposal.

In addition to the foregoing, special insignia are worn by naval astronauts, parachutists, balloon pilots, aerospace physiologists/experimental psychologists, master divers, diving officers, and explosive ordnance disposal personnel; and identification badges are displayed by those engaged in Presidential service or assigned to certain staffs, such as the Organization of the JCS or the Office of the Secretary of Defense.

NOTE: As this text was going to press, the Navy announced that beginning in 1978 enlisted men in pay grades E-1 thru E-4 will, on a trial basis, gradually return to the traditional uniform of bell bottoms, jumpers, and white hats.

CHAPTER 6

MILITARY COURTESY

Traditionally the terms "officer" and "gentleman" have been synonymous. Some of the requisite traits of the true officer are integrity, loyalty, dependability, regard for the rights of others, tolerance, self-confidence, sense of humor, ability to treat all as equals, tact, and good manners.

John Paul Jones in a letter to Congress in 1775 wrote, "It is by no means enough that an officer of the Navy should be a capable mariner. He must be that, of course, but also a great deal more. He should be as well a gentleman of liberal education, refined manners, punctilious courtesy, and the nicest sense of personal honor."

It is the purpose of this chapter to introduce most of the main aspects of military courtesy and etiquette, both as to the traditional elements that still survive and those that have changed with the passage of time.

THE SALUTE

One of the essentials of military courtesy is the salute. Regulations governing its use are founded on military etiquette and, as such, are deeply rooted in traditions and customs of the service. A military organization functions efficiently only as a unit, and any common bond or identifying symbol that furthers the feeling of comradeship strengthens that unity.

The custom of saluting is a time-honored demonstration of courtesy among military personnel the world over and expresses mutual respect and pride in the service.

In form, the salute is simple and dignified, but there is great significance in that gesture. The privilege of saluting is generally denied

prisoners because their status is unworthy of the comradeship of military personnel.

The salute probably originated in the days of chivalry, when it was customary for knights in mail to raise their visors to friends for the purpose of identification. Because of strict gradations or rank, the junior was required to make the first gesture. Another school of thought traces the salute back to a custom at the time of the Borgias. Assassinations by dagger were not uncommon at that time and it became the custom for men to approach each other with raised hand, palm to the front, to show that there was no weapon concealed.

In the American Navy, however, it seems reasonable to assume that the hand salute came to us directly from the British Navy. There is general agreement that the salute as now rendered is really the first part of the movement of uncovering. From the earliest days of military units, the junior uncovered when meeting or addressing a senior. Gradually, the act of taking off one's cap was simplified into merely touching the cap or, if uncovered, the head (forelock), and finally into the present form of salute.

PROPER MANNER OF SALUTING

Except when walking, one should be at attention when saluting. In any case, head and eyes are turned toward the person saluted unless inappropriate to do so, such as when a division in ranks salutes an inspecting officer on command. The right hand is raised smartly until the tip of the forefinger touches the lower part of the headgear or forehead above and slightly to the right of the right eye. Thumb and fingers

are extended and joined. The palm is turned slightly inward until the person saluting can just see its surface from the corner of the right eye. The upper arm is parallel to the ground, the elbow slightly in front of the body. The forearm is inclined at a 45° angle; hand and wrist are in a straight line. One completes the salute (after it is returned) by dropping the arm to its normal position in one sharp, clean motion.

The first position of the hand salute is executed when six paces from the person saluted, or at the nearest point of approach, if more than six paces. (Thirty paces is generally regarded as maximum saluting distance.) The first position should be held until the person saluted has passed or the salute is returned.

The hand salute, under naval custom, is accompanied by a word of greeting. The junior stands at attention, looks the senior straight in the eye and says, depending upon the time of day, as follows:

From first rising until noon—"Good morning,"

From noon until sunset—"Good afternoon,"

From sunset until turning in—"Good evening,"

It is preferable to call the senior by grade and name, i.e., "Commander Jones" rather than by the impersonal "Sir."

Naval custom permits saluting with the left hand when a salute cannot be rendered with the right hand; Army and Air Force custom permits only right-hand salutes.

Certain common errors in saluting should be avoided. The major faults to watch are these:

- Bowing the head as the salute is given.
- Dropping the salute before it has been returned.
- Holding the arm awkwardly high or letting it sag too low.
- Saluting on the double.
- Avoiding the gaze of the person saluted.
- Saluting with pipe, cigar, or cigarette in the mouth or in the hand.
- Waiting too long to begin the salute.
- Saluting in a casual or perfunctory manner.

WHEN TO SALUTE

In the Navy, as in practically every military service in the world, everybody salutes—from the bottom to the top and down again. Enlisted personnel salute all officers and every officer salutes his seniors. Salutes are returned by all who are saluted. When uncovered, the person saluted usually acknowledges a salute by an appropriate oral greeting or nod of the head.

Salutes are extended to officers of the Navy, Army, Air Force, Marine Corps, and Coast Guard; to foreign military and naval officers whose governments are formally recognized by the Government of the United States; and, when in uniform, to officers of the Naval, Army, Air Force, Marine Corps, and Coast Guard Reserve, and of the National Guard. Public Health and Coast and Geodetic Survey officers, when serving with the Armed Forces of the United States, rate a salute.

When several officers in company are saluted, all return the salute. For example, if an ensign were walking with a commander and an Army captain approached, it would be improper for the ensign to salute the captain until the captain first saluted the commander. As the commander returns the salute, the ensign salutes simultaneously. If two or more persons of various grades accompany the senior officer, the same rule applies: they render the salute when the senior officer returns the salute accorded.

Civilians entitled by reason of their position to gun salutes or other honors also are entitled by custom to the hand salute.

There are five types of personal salutes; hand salute, hand salute under arms, present arms, sword salute, and "Eyes right," given by personnel passing in review.

Aboard Ship

When boarding a ship in which the national ensign is flying, all persons in the naval service stop on reaching the upper platform of the accommodation ladder or the shipboard end of the brow, face the ensign, and salute. Following this, they salute the officer of the deck. On leaving the ship, personnel render the salutes in

reverse order: first to the OOD and then to the national ensign. These salutes also are rendered aboard foreign men-of-war.

All officers and enlisted personnel on board a ship of the Navy salute all flag officers (officers above the grade of captain), the commanding officer, and visiting officers senior to themselves on every occasion of meeting, passing near, or being addressed. On their first daily meeting they salute all senior officers who are attached to their ship. Many ships consider salutes rendered at quarters to suffice for this first salute of the day. They salute whenever they are addressing or being addressed by their seniors. They salute an inspecting officer during the course of an official inspection. When the progress of a senior officer may be impeded, officers and men clear a gangway and stand at attention facing the senior officer until he has passed.

In Boats

When someone is in charge of a boat that is not underway, he salutes officers that come alongside or pass nearby. If there is no one in charge, all those in the boat render the salute. Boat coxswains salute all officers entering or leaving their boats. (Although it is customary to stand when saluting, this formality is dispensed with if the safety of the boat is imperiled by so doing.) When boat awnings are spread, enlisted personnel sit at attention while saluting; they do not rise. Officers seated in boats rise when rendering salutes to seniors who are entering or leaving.

When boats pass each other with embarked officers or officials in view, hand salutes are rendered by the senior officer and coxswain in each boat. Officers seated in passing boats do not rise when saluting; coxswains rise to salute unless it is dangerous or impracticable to do so.

In Civilian Clothes

The proper greeting is initiated when a junior recognizes a senior in the armed services as one who rates a salute, even though the senior

may be in civilian clothing. If covered, a salute may be rendered. In time of war, however, an officer not in uniform may be deliberately avoiding disclosure of his/her naval identity, and one should be discriminate about following the normal (peacetime) rule.

In a Group

If enlisted personnel or officers are standing together and a senior officer approaches, the first to see the senior calls out "Attention!" and all face and salute.

Overtaking

No junior should overhaul and pass a senior without permission. When for any reason it becomes necessary for the junior to pass, he does so to the left, salutes when abreast of the senior, and asks, "By your leave, sir/ma'am?" The senior replies, "Very well," and returns the salute.

Reporting

When reporting on deck or out-of-doors ashore, one is covered and salutes accordingly. When reporting in an office, one uncovers upon approaching the senior, and therefore does not salute.

Seated

An enlisted person being seated and without particular occupation rises upon the approach of an officer, faces and salutes, if covered. If both remain in the same general vicinity, the compliments need not be repeated.

Seniority Unknown

In most cases officers will know the relative seniority of those with whom they are in frequent contact, but there are many situations, especially ashore, where that is an obvious impossibility. Perhaps the safest advice is, at such times, to salute, doing so without delay. As a matter of fact, in practically every case where uncertainty exists, regardless of grade, the rule is to render the salute.

Sentries

Sentries at gangways salute all officers going or coming over the side, and when passing or being passed by officers close aboard in boats or otherwise.

Vehicles

Enlisted personnel and officers salute all senior officers riding in vehicles, while those in the vehicle both render and return salutes, as may be required. The driver of a vehicle is obliged to salute if the vehicle is at a halt; to do so while the vehicle is in motion might endanger the safety of the occupants and so may be omitted.

WHEN NOT TO SALUTE

There are some situations in which it is improper to salute. These are as follows:

When uncovered, except where failure to salute might cause embarrassment or misunderstanding.

In formation, except on command.

On work detail (person in charge of detail salutes).

When engaged in athletics or assembled for recreation or entertainment.

When carrying articles with both hands, or otherwise so occupied as to make saluting impracticable.

In public places where obviously inappropriate (theaters, restaurants, etc.).

In public conveyances.

When a member of the guard engaged in performance of a duty which prevents saluting.

In action or under simulated combat conditions.

At mess. (When addressed, stop eating and show respectful attention.)

HAND SALUTES ON FORMAL OCCASIONS

During national anthem. When the national anthem is played, persons in the naval service stand at attention, facing toward the colors, if displayed; otherwise, they face the music. If covered, they salute at the first note of the anthem and remain at the salute until the last note. When in ranks, the officer-in-charge orders "Attention" and renders the appropriate hand or sword salute for the formation. In boats, only the boat officer—or, in his absence, the coxswain—stands and salutes when the national anthem is played. Other members of the crew and passengers who are already standing, stand at attention. All others remain seated at attention. Personnel in civilian clothing standing at attention in a boat during the playing of the national anthem do not render the "hand-over-heart" salute. This is an exception to the general rule.

The above rules apply only to a formal rendition of the national anthem. For example, if a person in uniform heard "The Star-Spangled Banner" being broadcast over the radio, he/she would not be expected to stop, face toward the music, and salute. On the other hand, at a public gathering where the anthem was being broadcast as part of the ceremony, he/she would render the required honors.

During parades. Military personnel salute the flag when they are passed by or pass the flag being carried uncased in a parade or military formation.

Funerals and religious services. During funerals (figure 6-1), officers and enlisted personnel remain covered while in the open but uncover during the committal service at the grave. During burial services at sea, previously illustrated in figure 4-5, they remain covered throughout the service.

During religious services aboard ship and during formal religious ceremonies outdoors ashore (such as Easter sunrise service), members remain uncovered throughout the ceremony.

In general, a military person uncovers during a religious ceremony but remains covered during a military ceremony. Church services, civilian



134.38

Figure 6-1.—During military funerals, officers and men remain covered while in the open.

funerals, or burial services which the officer or enlisted person attends as a friend or relative rather than as a representative of the Navy are religious ceremonies. Military funerals and burial at sea are regarded as primarily military ceremonies.

At a military ceremony when the occasion requires, an officer or enlisted person salutes rather than uncovers, as that is the traditional mark of respect. If an officer were attending a military funeral officially, a salute would be appropriate whenever honors are rendered; when the body is removed from the hearse to the chapel, from the chapel to the caisson, and from the caisson to the grave; when the volleys are fired; and when "Taps" is sounded.

As a participant at a nonmilitary funeral or burial service, an individual may follow the civilian custom and uncover (rather than salute) when such honors are called for, as during the

procession to the grave, the lowering of the body, and so on.

Jewish custom calls for remaining covered during all religious ceremonies. The usual rules regarding uncovering do not apply when the service is being conducted by a representative of that faith.

Service personnel wearing civilian clothing at a military funeral follow the etiquette prescribed for civilians.

Honors to the Colors. Naval ships not underway hoist the national ensign at the flagstaff aft at 0800 and lower it at sunset. The union jack, likewise, is hoisted and lowered at the jackstaff forward at the same times. At colors, the ensign is hoisted smartly, lowered slowly, and is never allowed to touch the deck. At both morning and evening colors, "Attention" is sounded, and all officers and enlisted personnel topside face the ensign and

render the salute. At shore stations and, in peacetime, on board large vessels where a band is present, the national anthem is played during the ceremonies. In the absence of a band, a bugler, if available, sounds "To the Colors" at the morning ceremonies and "Retreat" at sunset formalities. (When a naval ship is underway, the ensign usually is flown both day and night from the mast and the jack is not hoisted.) In half-masting the ensign, it is first raised to the truck or peak and then lowered to half-mast. Before being lowered from half-mast, the ensign is first raised to the truck or peak and lowered with the usual ceremonies.

During colors, a boat underway within sight or hearing of the ceremony either lies to or proceeds at the slowest safe speed. The boat officer—or in his absence, the coxswain—stands and salutes except when dangerous to do so. Other persons in the boat remain seated or standing and do not salute. Vehicles within sight or hearing of colors are stopped. Persons riding in vehicles sit at attention. The person in charge of a military vehicle (but someone other than the driver) renders the hand salute.

When a vessel under the flag of a nation formally recognized by the Government of the United States salutes a ship of our Navy by dipping her ensign, the salute is returned dip for dip. U.S. naval vessels never initiate the dipping of the ensign.

In the large assortment of flags carried by American men-of-war, only one flies above the ensign: the church pennant (figure 6-2), displayed while divine service is being held by a chaplain or visiting church dignitary.

NAVAL ETIQUETTE.

The phase of military courtesy which covers relations among officers and between officers and enlisted personnel undergoes little change during a war, probably because these relations are the most fundamental part of all military courtesy and the main source of most naval etiquette.

The twin foundations of military courtesy among officers are: (1) precedence; (2)



134.39

Figure 6-2.—The church pennant, hoisted while divine services are being held, is the only emblem that may be flown above the ensign.

deference to seniors. Officers take precedence according to their grade, and this precedence is not confined to strictly military relations on ship or shore, but extends to the mess, to the club, and to social life.

Naval courtesy prescribes that junior officers accord their seniors certain indications of deference and respect which correspond to those which younger people would accord to their elders under the usages of polite society. It also prescribes that seniors shall, with equal punctiliousness, acknowledge and respond to these tokens of respect required of juniors, so that there exists no semblance of servility in the interchange, but rather a sort of ritual for

observance by those serving their country in a strictly ordered fraternity of military service.

GENERAL RELATIONS BETWEEN JUNIORS AND SENIORS

A junior officer approaching a senior for the purpose of making an official report remains at attention until invited to be seated or to stand at ease. The invitation should be awaited rather than anticipated.

Unless on watch, a person in the naval service uncovers when entering a room in which a senior is present.

When a senior enters a room in which junior officers or enlisted persons are seated, the one who first sees the senior calls "Attention." All present remain at attention until ordered to carry on.

When addressed by a senior, the junior, if seated, rises and remains at attention. Personnel seated at work, at games, or at mess are not required to rise when an officer, other than a flag officer or the captain of the ship, passes, unless they are called to attention or when it is necessary to clear a gangway.

The place of honor is on the right. Accordingly, when a junior walks, rides, or sits with a senior, the junior takes position alongside and to the left.

When entering an automobile or a boat, officers do so in inverse order of grade. A lieutenant and a captain getting into an automobile enter in that order, with the lieutenant taking the seat in the far, or left-hand, corner, the captain sitting on the right side. When getting out, the captain leaves first. In entering buildings or rooms, however, the junior opens doors for the senior and enters last.

The custom of the "right-hand rule" is an old one, quaintly expressed by George Washington in his 30th "Rule of Civility": "In walking, the highest place in most countries seems to be on the right hand, therefore, place yourself on the left of him whom you desire to honor."

At parties, it is not considered good taste to leave before the commanding officer. If necessary to do so, respects are paid to the commanding officer before departing.

A junior never offers to shake hands with a senior; the latter makes the first gesture.

A junior officer avoids keeping a senior waiting. Normal courtesy aside, punctuality is essential in the service. When called by a senior, a junior responds immediately.

In replying to questions from a senior, a junior officer avoids a great deal of embarrassment by giving complete and explicit answers. If the desired information cannot be supplied, an "I don't know, sir/ma'am, but I will find out and let you know," is much better than an indirect answer that conveys misinformation on which a senior may be basing an important decision. To avoid admitting ignorance, juniors sometimes make evasive statements that not only seriously affect their reputation but also confuse the issue.

It is an excellent practice for a junior who has been ordered to do an assigned task to report back promptly to the senior either the completion of the task or exactly what has been done about its completion.

When given orders, juniors must ensure that they know what is required and when it is required. They should not hesitate to ask questions to clarify points. If advice is needed, they should attempt to get it from their peers; but should not hesitate to go to the senior who gave the orders. Juniors should anticipate the wishes of a senior, whenever possible.

An officer should not jump the chain of command. When necessary to proceed to someone higher in the chain of command, one's immediate supervisor should be kept informed.

Suggestions for Junior Officers

Excuses for failure or negligence are always unacceptable. An officer should assume responsibility and not depend on alibis. If at fault freely accept the blame.

Bootlicking, a deliberate courting of favor, is despised. Such tactics may be temporarily mistaken for sincere desire to please and to make good but in time seniors through long experience with such demeanor recognize "greasing." However, a genuine effort to be friendly and cooperative is essential to a junior

officer's success. A continued willingness to undertake any task assigned and perform it cheerfully and efficiently will, in time, gain for the young officer a reputation for dependability and ensure popularity with fellow officers. Continued grouching and loafing will have exactly the opposite effect. The satisfaction of having done a good job should be sufficient reward in itself. The junior officer should not report such accomplishments to the senior officer. Of course a report that is required must be made, but work well done generally reaches the attention of superiors.

The conduct of members of the service must be above criticism. The Navy will be judged by an officer's appearance and behavior.

It goes without saying that all undertakings and projects must be carefully considered in advance and that all preparations necessary to the success thereof must be made well in advance. Officers hold their positions because they are believed to be capable of thinking ahead and making intelligent plans, and they must always strive to demonstrate that they are entitled to the grade they hold.

One of the best things that can be said about junior officers by their seniors is that when given a job they can always be depended upon for satisfactory results.

Suggestions for Shipboard Officers

One cannot learn too soon that every officer has two personalities, the official and the unofficial. An officer who plays the "good fellow" on watch is sooner or later bound to come to grief. Holding a boat for a brother officer who is late is an example. It is a poor excuse to offer an executive officer that his written order contained in the boat schedule has been disobeyed simply because another officer requested it.

Whenever an officer receives an order requiring transmittal to subordinates for action, it is his/her duty to see that the order is promptly and smartly executed. The officer's responsibility in the matter does not end until

the order has been carried through to its proper completion.

Sometimes an officer may dislike certain orders that come down from above. Nevertheless, an officer must follow these orders implicitly and see that they are obeyed by the personnel in his/her charge. The promulgating of such orders may seem difficult, but an officer should never apologize for them and should never question an order in front of subordinates.

When a young officer reports on board ship, it is important that he devote most of his spare time to professional reading and getting acquainted with his ship's organization and regulations. A certain amount of time each day should be set aside for professional study.

It is wise procedure for an officer never to request permission to leave ship in the afternoon until the work assigned or expected of him has been completed. There is much to be learned in the first few months aboard ship. The astute newcomer will not let himself be known as a "liberty hound."

A junior officer of a division should always be in his part of the ship in the morning BEFORE his division officer arrives. He should also make it a point to be at general drills before his division officer. He should invariably address that officer as "Commander _____," or as appropriate.

A junior division officer should keep a complete notebook of his division, showing names, initials, rate, bunk and billet numbers, with all watch, quarter, and station assignments. The book should be small enough to be carried on his person. It is also a good idea to keep in the security of one's room confidential notes concerning various men. This information will be of service when giving evaluation marks and recommending men for advancement in rating.

The new officer will be critically evaluated by all hands shortly after he comes aboard ship. Senior officers do not always call attention to minor faults or errors made by juniors, but they are sure to notice them and will form their opinions accordingly. While they will make due allowance for lack of experience, their final estimate will be based entirely on what the

young officer contributes. He should be alert and analyze his conduct frequently to determine if by chance he is offending unintentionally. A lack of deference toward senior officers or a tendency to become familiar with them; harsh, unreasonable handling of enlisted men; or irresponsibility and lack of initiative will in each case produce unfavorable comment and an impression that may be lasting.

Some officers are prone to think that their badge of office will carry them through all difficult situations even though they are not fully qualified for the responsibilities of that office. Inevitably they suffer a rude awakening. The intelligent and effective junior officer knows the limits of his/her abilities and is continually striving to increase those limits by learning from all available sources.

An officer's appearance is very important; therefore, one's good clothes should be worn at quarters and best clothes at inspections.

An outstanding naval officer of the 19th century, Matthew Fontaine Maury, said: "Make it a rule never to offend, nor to seek causes of offense in the conduct of others. Be polite to all, familiar with but few. The rule in the Navy is to treat everybody as a gentleman until he proves himself to be otherwise. It is a good rule—observe it well."

It has long been the custom in the Navy for officers to relieve the watch not later than 15 minutes before the hour that the watch begins (usually signaled by the traditional bell system of shipboard timekeeping). This requires being on the bridge at sea 30 minutes before the bell. Late relieving is not only a breach of naval custom but is discourteous and unpardonable.

It has been said that of all the valuable qualities an officer can have, few of them are superior in importance to tact. In a military sense this means a knowledge and an appreciation of when and how to do things. Tactful officers know how to deal with their shipmates—both senior and junior. The usefulness of many an otherwise capable officer has been marred because of the lack of tact.

In conclusion, all organizations in society have certain customs and etiquette. These are

especially necessary for smooth cooperation between men living close together as is done on board a man-of-war. Disregard of customs and etiquette marks one as careless, indifferent, or ignorant.

Every professional officer and man takes pride in naval traditions and eagerly conforms to the customs and etiquette of the service. These traditions and customs are the honorable heritage of men who "go down to the sea in ships."

FORMS OF ADDRESS

Custom, tradition, and social change determine the form of verbal address of introduction of members of the naval service. Although tradition and military customs generally predominate, there are some differences in methods of addressing and introducing military personnel, according to whether you are in civilian or military circles at the time. (See figure 6-3.)

Except as provided in the paragraphs that follow, all officers in the naval service shall be addressed or introduced by the title of his or her grade preceding the surname.

Officers of the Medical Corps or Dental Corps, and officers of the Medical Service Corps or Nurse Corps having a doctoral degree, may be addressed as "Doctor." Likewise, an officer of the Chaplain Corps may be addressed as "Chaplain." However, if the doctor or chaplain prefers to be addressed by title, such preference should be honored. When addressing an officer whose grade includes a modifier (e.g., lieutenant junior-grade), the modifier may be dropped.

In general, it is preferable to call an officer of the rank of Commander or above by his title and name; that is, "Commander_____" rather than by the impersonal "sir." Other officers are addressed in the same manner. In prolonged conversation, where repetition would seem forced or awkward, the shorter "sir" naturally is used more often.

A warrant or chief warrant officer is addressed as "Warrant Officer_____" or "Chief Warrant Officer_____." In military circles, a

NAVAL ORIENTATION

PERSON ADDRESSED OR INTRODUCED	TO MILITARY		TO CIVILIAN	
	Introduce as:	Address as:	Introduce as:	Address as:
CDR or above	Captain (or appropriate rank) Smith	Captain Smith	Captain Smith ¹	Captain Smith
LCDR or below	Mr. (Mrs., Miss, Ms.) Smith	Mr. Smith	LCDR Smith ²	Mr. Smith
Medical Corps officer and Dental Corps officer	Dr. Smith ³	Dr. Smith ³	Lt. Smith of the Navy Medical Corps	Dr. Smith ³
Chaplain Corps officer	Chaplain Smith	Chaplain Smith	Chaplain Smith	Chaplain
Navy Nurse Corps officer	Commander (Mrs., Miss, Ms.) Smith	Commander (Mrs., Miss, Ms.) Smith	Commander Smith of the Navy Nurse Corps	Commander (Mrs., Miss, Ms.) Smith
Chief Warrant officer	Mr. (Mrs., Miss, Ms.) Smith	Mr. Smith	Warrant Officer Smith	Mr. Smith
Midshipman	Mr. Smith	Mr. Smith	Midshipman Smith	Mr. Smith
Warrant officer	Mr. (Mrs., Miss, Ms.) Smith	Mr. Smith	Warrant Officer Smith	Mr. Smith
Chief Petty officer	Chief Petty Officer Smith ⁴	Chief, or Chief Smith	Chief Yeoman Smith	Mr. (Mrs., Miss, Ms.) Smith
Aviation cadet	Aviation Cadet Smith	Mr. Smith	Aviation Cadet Smith	Mr. Smith
Petty officer	Petty Officer Smith	Petty Officer Smith	Yeoman Smith or Petty Officer Smith	Mr. (Mrs., Miss, Ms.) Smith
Seaman	Seaman Smith	Seaman Smith	Seaman Smith	Mr. (Mrs., Miss, Ms.) Smith

¹When not in uniform a captain or lieutenant would be introduced as "of the Navy" to distinguish the grade from the other services.

²A suggested form of introduction is: "This is LCDR Smith. Mr. (Mrs., Miss, Ms.) Smith is now stationed here." This indicates both (a) the officer's grade and (b) the form of address.

³If a senior officer of the Medical or Dental Corps prefers to be addressed by title, such preference should be honored.

⁴Prefixed by "Senior" or "Master" as appropriate.

Figure 6-3.—Introducing and addressing naval personnel.

midshipman is addressed as "Mr./Ms. _____;" when with civilians he/she is introduced as "Midshipman _____" and addressed as "Mr./Ms. _____."

Aboard ship, the regularly assigned commanding officer is addressed as "Captain" regardless of his grade. The regularly assigned executive officer may be addressed as "Commander" without appending his name.

A naval officer is introduced to civilians by title, and the method of introduction should give the cue as to how he should be addressed from then on. If you were introducing an officer below the grade of commander, you might say, "This is Lieutenant Jones. Mr. Jones is an old shipmate of mine." This serves a double purpose; it gives the civilian to whom you are introducing an officer knowledge of the naval man's grade in the event that person does not know it, and it also gives the correct method of address, "Mr. Jones."

Because many people are not familiar with Navy grade insignia and corps devices, it is usually a good idea to make any introduction, however brief, reasonably informative. A woman lieutenant or lieutenant commander may be introduced with the words, "This is Lieutenant Johnson. Miss Johnson is in the Nurse Corps"; or "This is Lieutenant Commander Jones. Miss Jones is on duty in the Navy Department."

The Navy today is a cross-section of America. In the same family, one man may be a machinist's mate and his brother a lieutenant. An ensign may have a sister who is a yeoman, and so on. General Pershing held the highest United States military rank, General of the Armies, but his son entered World War II as a private. The first Secretary of Defense entered World War I as a seaman second class.

Accordingly, even though the distinction between officer and enlisted personnel still exists in all formal and official relations, it does so less and less in non-military relations.

Military and civilian practices differ in introducing and addressing enlisted personnel. Under military conditions, petty officers of the Navy shall be addressed and introduced by their respective title followed by their last name. Petty officers in the pay grades of E-7, E-8, and E-9 are addressed informally as "Chief _____" prefixed by "Senior" or "Master," as

appropriate. They are introduced formally as "Chief Petty Officer _____" prefixed by "Senior" or "Master," as appropriate. Petty officers in pay grades E-4 through E-6 are introduced and addressed both formally and informally as "Petty Officer _____." There is no change in the form of verbal address (by last name) of pay grades E-3 and below. However, when introducing them, their last name will be preceded by "Seaman," "Fireman," "Airman," or "Constructionman," etc., as appropriate.

Civilians feel unnecessarily curt in social gatherings when addressing enlisted personnel as described in the preceding paragraph. It is customary, therefore, for those outside the service to extend to enlisted personnel the same courtesies they would extend to them in civilian life and to prefix their names with "Mr.," "Mrs.," "Miss," or "Ms.," as the case may be. In introducing them, one should give their title and name, then the mode of address, as "This is Petty Officer Smith. Mr. Smith will be visiting us for a while." Thereafter he will be addressed as "Mr. Smith."

There is only one proper response to an oral order—"Aye, aye, sir/ma'am." This reply means more than "yes." It indicates that "I understand and will obey." Such responses to an order as "O.K., sir," or "All right, sir," are taboo. "Very well" is proper when spoken by a senior in acknowledgment of a report made by a junior, but a junior never says "Very well" to a senior.

The word "sir/ma'am" should be employed as a prefix to an official report, statement, or question addressed to a senior. It should also be used when addressing an official on duty representing a senior. For example, the officer of the deck, regardless of grade, represents the commanding officer, and should be addressed as "sir."

A junior addressing a senior should introduce himself/herself unless certain the senior knows him/her by sight.

There are certain differences in phrasing which should be noted. A senior officer sends his/her "compliments" to a junior. For example, "Admiral Smith presents his compliments to Captain Brown." A junior sends his/her "respects." When making a call upon a commanding officer, one is correct in saying, "Captain, I came to pay my respects," or to say

to the orderly before entering her office, "Tell the captain that Ensign Jones would like to pay her respects."

In written correspondence, a senior officer may "call" attention to something, but a junior may only "invite" it. It is Navy custom that a junior writing a memorandum to a senior subscribes it "Very respectfully"; a senior writing to a junior may use "Respectfully."

QUARTERDECK ETIQUETTE

Quarterdeck etiquette remains the same in peace and war. It is well to remember when on the quarterdeck that this has always been the honored, ceremonial part of the ship and that it still retains its sanctity.

When an officer comes on board ship, he salutes the officer of the deck and says, "I report my return aboard, sir," if it is his own ship, or "I request permission to come aboard, sir," if visiting the ship. Upon leaving his own ship, the officer, as he salutes the officer of the deck, says, "I have permission to leave the ship, sir." If a visitor, the officer says as he salutes "With your permission, I shall leave the ship, sir." or "I request permission to leave the ship, sir."

The etiquette of the quarterdeck should be strictly enforced by the watch officer. The quarterdeck should be kept immaculate and its ceremonial character maintained. For officers and enlisted men alike, adherence to these rules is required:

1. Avoid appearing out of uniform.
2. Never smoke.
3. Refrain from putting hands in pockets.
4. Refrain from horseplay.
5. Don't engage in recreational athletics on the quarterdeck unless it is sanctioned by the captain, and then only after working hours.

The officer of the deck is the officer on watch in charge of the ship (normally on duty for four hours) and represents the captain. He is responsible for the safety of the ship, subject, however, to any orders he may receive from the

commanding officer. Every officer or other person on board ship, whatever his rank, who is subject to the orders of the commanding officer, except the executive officer, is subordinate to the officer of the deck. However, when the commanding officer considers that circumstances warrant, he may delegate to another officer for a specified watch, (ex: Command Duty Officer) authority to direct the officer of the deck how to proceed in time of danger or during an emergency. Such an officer, while on watch, bears the same relation to the officer of the deck, both in authority and responsibility, as that prescribed for the executive officer, but shall be subordinate to the executive officer.

It is important for the officer of the deck to know who is approaching his ship at all times. Small boats nearing a vessel at anchor at night are hailed by the sentries, gangway watch, or quartermaster with "Boat ahoy!" The boat coxswain returns the hail according to personnel aboard as shown by the following selected examples:

"United States"—if the President of the United States is aboard.

"Navy"—if the Secretary of the Navy is aboard.

"Fleet"—if the commander-in-chief of the fleet is aboard.

"Name of ship"—the ship's name is given indicating that its commanding officer is aboard.

"Aye, aye"—if a commissioned officer is aboard.

"No, no"—if a midshipman or noncommissioned warrant officer is aboard.

"Hello"—if an enlisted man is aboard.

"Passing"—boats not intending to come alongside, regardless of passenger status.

WARDROOM ETIQUETTE

The officers' mess is organized on a business-like basis. There is a mess fund to which each officer must contribute his share on joining the mess. An officer receives a subsistence allowance from the Navy and it is a courteous gesture for him to ask the mess treasurer, within

the first 24 hours aboard, for his mess bill and mess entrance fee and pay them at once. The monthly mess assessments defray the cost of food as well as conveniences such as periodicals.

The fund is administered by the mess treasurer, who is elected by the members. In messes where the treasurer does not also act as caterer, the commanding officer appoints a mess caterer. The treasurer then is responsible for accounting for all receipts and expenditures, while the duties of the caterer involve the purchase of food, preparation of menus, and supervision of service. These are recognized as collateral duties, and attention is paid to them in the marking of officers' reports of fitness. As with all things, study and application are required to do the job well. Some caterers perform their tasks exceptionally well with full attention to balanced diets, light appetizing luncheons, and planning with the Mess Management Specialist for new dishes and variety in menus. At the close of each month, the mess treasurer gives the mess members a statement of the mess accounts.

The senior officer of the wardroom mess will always welcome a junior officer and treat him as a full-fledged member of the mess in every respect. Nevertheless, a junior officer should not be too forward in conversation or action. An error on the side of formality is more readily pardoned than one in the other direction.

Like many other phases of naval courtesy, wardroom etiquette of necessity undergoes many changes in time of war. In the interest of completeness, perhaps the best approach to the subject would be to take up the generally prevailing rules of wardroom etiquette as they are in peacetime and then to give some of the variations that would be brought about by war.

In peacetime. The wardroom is the commissioned officers' mess and lounge room. The main peacetime rules of etiquette are:

1. Don't enter or lounge in the wardroom out of uniform.
2. Except at breakfast, don't sit down to meals before the presiding officer does.
3. If necessary to leave before the completion of the meal, ask to be excused.
4. Introduce guests to wardroom officers, especially on small ships.

5. Never be late for meals. If you are unavoidably late, make your apologies to the presiding officer.

6. Don't loiter in the wardroom during working hours.

7. Avoid wearing a cap in the wardroom, especially when your shipmates are eating.

8. Avoid being boisterous or noisy.

9. Don't talk shop continuously.

10. Pay mess bills promptly.

11. In general, the young officer pursues the correct course by being the best listener in the mess.

12. Religion, politics, and women should not be discussed.

13. "Bulkheading," or expressing unfavorable comments and opinions about senior officers, is not tolerated.

Good manners, with a consideration for other members and their guests, constitute the first principles to which all others are secondary.

The executive officer normally is president of the mess. On a small ship such as a DD, however, a separate mess is not provided for the commanding officer. In this case the CO, who eats his meals in the wardroom, is president of the mess.

Officers are assigned permanent seats at the table, alternately, in the order of grade, to the right and left of the presiding officer, except that the seat opposite that of the presiding officer is occupied by the mess caterer. (Second ranking officer sits on the right of the presiding officer, third on the left, and so on.)

In wartime. During a war, the routine of the wardroom is vastly different from that just described. Regular mealtimes are out of the question during general quarters. If, before starting to eat, one always waited for the presiding officer to sit down, meals would be too irregular and delayed.

Many officers who have served in wartime can report that, instead of dining in the wardroom, they have eaten sandwiches and coffee served topside whenever they could snatch a hasty bite. A rule about never being late for meals is hardly binding under such circumstances.

The seating arrangements in wardrooms may undergo changes during a war. A ship may

scatter her higher ranking officers among many tables rather than concentrate them at one place, where a chance enemy hit might wipe out all of them at once. It is sometimes the custom for men eating in shifts to be cross-sectioned by grade among the various shifts, for the same reason.

In short, in peacetime, wardroom etiquette follows the old, established customs; but during a war, common sense and necessity dictate expedient conduct.

BOAT ETIQUETTE

Boat etiquette may be summed up as follows:

1. Unless otherwise directed by the senior officer present, officers enter boats in inverse order of rank (juniors first) and leave them in order of rank (juniors last).
2. It is proper to stand and salute when a senior enters or leaves a boat, unless as an enlisted man you have an officer or petty officer in charge to render the honors. However, common sense and safety always prevail.
3. When a senior officer is present, do not sit in the stern seats unless asked to do so.
4. The seniors are accorded the most desirable seats.
5. Always offer a seat to a senior.
6. When leaving a ship, get in the boat a minute before the boat gong, or when the officer of the deck says the boat is ready—don't make a last-second dash down the gangway.
7. If the boat is crowded, juniors embark in the next boat.
8. Juniors in boats take care to give seniors room to move about.
9. A landing over another boat (using the thwarts, gunwales, and decking of another boat as a walkway) should not be made without permission, and permission to do so is not requested if it can be avoided.

SOCIAL CALLS

Except during wartime, when the practice is almost universally canceled, officers first

reporting to a command make a visit of courtesy to the commanding officer within 48 hours. This is done even though they may have met the captain when they reported for duty. The executive officer usually arranges a time for the visit. Aboard ship, the social call is made in the captain's cabin, although in small ships the captain may dispense with the formality of courtesy visits.

At an activity ashore, the commanding officer may designate "at home" hours during which juniors make their social calls. At other stations, there may be periodic "hail and farewell" cocktail parties during which calls are considered made and returned. Newly reported juniors also should call at the homes of their department head and executive officer within about 2 weeks. If married, the spouse should accompany the officer.

Officers making courtesy visits to the commanding officer's cabin or office should never settle back for a long conversation but should remain for only about 10 minutes unless requested to remain longer. They should try to be attentive and polite but not servile or wooden, and although they should allow their host to direct the conversation, they should try to add more to it than simple affirmatives and negatives. It would be wise to refrain from asking leading questions about their new duty, about military problems facing their host, or about intimate details concerning the commanding officers private life.

An officer invited to dinner should take particular pains to be punctual and to leave before the welcome has worn out. It is not necessary to stay all afternoon or evening. A visit of from three-fourths to one hour after a meal is all that courtesy demands, and one should ask to be excused within this time unless urged to remain. If there is present a guest of honor who is not a houseguest, other guests should await her or his departure, if possible.

Conduct in Foreign Countries

When ashore in uniform in foreign countries, an officer or student officer will do well to remember that his/her conduct will be

considered as representative of the conduct of all members of the United States naval service. The laws and customs of any foreign country must be scrupulously respected. Infractions of a seemingly unimportant nature, even though committed unwittingly, arouse resentment and may result in serious complications. Under no circumstances should an officer enter into an altercation or argument with anyone abroad. In case of trouble of any nature, the officer should refer the matter to appropriate U.S. naval authority ashore or afloat. If senior naval guidance is not available, the consular officer of diplomatic representatives of the United States should be consulted.

United States customs regulations are most explicit in stating that exemption from payment of duty for articles purchased abroad covers only articles intended for personal use of the returning traveler. The term PERSONAL USE as used in the regulations is intended to cover articles purchased with the traveler's own money, either for his/her own use or as a gift to others. The importation of large quantities of material, under any agreement which permits transfer of goods after importation, is an evasion of the regulations. Offenders are liable to heavy fines as well as to imprisonment. An accurate record of purchases made abroad should be kept so that a correct customs declaration can be made. The prices actually paid for articles purchased abroad, either in the currency of the country where purchased or the equivalent in United States currency, must be stated in the customs declaration.

SHIPBOARD RELATIONS BETWEEN OFFICERS AND MEN

A shipboard environment increases the difficulty with which the proper relationship between an officer and enlisted man is maintained. An officer's relations with his men should be founded on mutual respect. An American bluejacket is intelligent, cooperative, and ambitious. He wants to be treated like a man and expects his abilities to be appreciated. He wants to respect his officers—to admire them and to be able to boast about them to the men of other ships.

An inexperienced officer, in his relationship with his men, is likely to be hesitant and uncertain. He finds himself in an unfamiliar situation, among people who are strangers to him. By virtue of his commission he is placed in charge of enlisted personnel and this newly acquired authority is strange to him. He wants to be liked by his men, to know them as individuals, and yet maintain his rightful authority over them.

Personal dignity is a quality which the young officer must cultivate. It is that undefinable something possessed by successful leaders which enables them to converse at length with their men on casual and unofficial matters, and yet at the same time maintain that reserve which discourages undue familiarity.

However, consideration for enlisted men is a "must." For example, if an officer of the deck finds it necessary to send a boatcrew away during meal hours, he should order the mess deck master-at-arms and duty cook to save hot meals for them. A good leader always remembers the welfare of his men.

Some new officers feel that they promote friendliness between themselves and their men by calling the men by their first names, or, worse still, by their nicknames. The men should be addressed appropriately as previously discussed in this chapter.

An officer should never permit enlisted men to visit him in his room or in the wardroom country unless the matter is extremely urgent. He should arrange to see them in his department office or in his part of the ship.

Financial transactions between officers and enlisted men are forbidden.

Mess Management Specialists are in charge of the wardroom, pantries, galley, and officers' rooms. Since they are constantly in close contact with officers and have frequent occasion to be in the wardroom and in officers' rooms, there is a tendency to become too familiar with them, or perhaps, at times, to be brusque with them. An officer should always be tactful in his dealings with them. If an officer feels that a complaint is in order or disciplinary action is necessary, he should deal directly with the mess caterer who has charge of the Mess Management Specialist.

In summary, relations between officers and men are founded upon the same mutual respect as that between fellow officers. The measure of respect which an officer inspires in his men is the measure of that officer as a man and a sailor; his sincerity; his sense of justice; his interest and concern for his men's welfare; his dignity

and bearing; his firmness and consistency in requiring obedience to his own, or the captain's orders; and his interest in and knowledge of his profession. A study of the methods of officers who are experts in handling enlisted men would well repay the novice eager to acquire the technique.

CHAPTER 7

DISCIPLINE AND THE UNIFORM CODE OF MILITARY JUSTICE

Now these are laws of the Navy
Unwritten and varied they be;
And he that is wise will observe them,
Going down in his ship to the sea.
As the wave rises clear to the hawse pipe,
Washes aft, and is lost in the wake,
So shall ye drop astern, all unheeded,
Such times as the law ye forsake.
Now these are the laws of the Navy,
And many and mighty are they.
But the hull and deck and the keel
And the truck of the law is—OBEY.
Admiral Ronald Hopwood, R.N.

VALUE OF DISCIPLINE

To the average person the word “discipline” carries with it connotations of severity, an unreasonable curtailment of freedom, unnecessary restraints on personal conduct, endless restrictions, and compliance with arbitrary demands of authority. Actually, discipline is the basis of true democracy; for, without depriving an individual of his fundamental rights, it nevertheless requires adherence to a set of rules of conduct that man, through the experience of the ages, has found best suited to govern relations among members of society. Some of these rules are made by duly constituted authority and are laid down in writing. These are called laws. Others, sanctioned by custom and usage, are called conventions.

Discipline is not peculiar to military organizations. Discipline is the training that develops self-control, character, and efficiency, or is the result of such training. Discipline, rightly viewed, is a character builder rather than

a destroyer of individuality. Discipline implies adherence to a control exerted for the good of the whole—the compliance with rules or policies intended for the orderly coordination of effort. In a study on this subject Admiral Arleigh Burke, USN (Ret.) stated: “A well-disciplined organization is one whose members work with enthusiasm, willingness, and zest as individuals and as a group, to fulfill the mission of the organization with expectation of success.” The signs of discipline are manifested in smart salutes, proper wearing of the uniform, prompt and correct action in any emergency (figure 7-1), and in battle efficiency that brings victory in wars. Discipline, obviously, is indispensable to a military organization. Without it almost any effort would be defeated by lack of organization. True discipline demands habitual but reasoned obedience to command—an obedience that preserves initiative and functions unflinchingly even in the absence of the commander.

The purpose of discipline in the military services is to bring about an efficient military organization, a body of human beings trained and controlled for concerted action for the attainment of a common goal. Each individual understands how to fit into the organization as a whole. The members understand one another through the sharing of common knowledge and are bound together by unity of will and interest that is expressed by their willingness to follow and obey their leader. A group so organized is effective, not only for the specific purpose intended, but also for an emergency. Thus, a gun crew may be readily converted into a repair party for carrying out any essential job within its capabilities; a company of midshipmen may be turned into a firefighting organization. A



134.42

Figure 7-1.—The fruits of discipline are manifested in prompt and correct action in an emergency, and especially in the battle efficiency that brings victory in war.

well-disciplined naval unit responds automatically to an emergency and is not subject to panic. An actual wartime incident illustrates this point.

Two sister ships lay in adjoining anchorages. One was known as a taut ship. Her commanding officer recognized the value of proper organization, discipline, and training.

Her sister ship lying nearby was an example of the opposite condition. Her decks were dirty, her crew was slovenly and careless in salutes, and her records were cluttered with courts-martial.

It was nearly midnight and the tide was running out strongly against the wind, making a nasty chop. A motor launch from the slack ship was bucking the sea, her liberty party huddled in the stern under a tarpaulin. The coxswain had ordered the men to distribute their weight farther forward so that he could better see over the bow

of his boat, but their concept of obedience was in keeping with that of their ship. In the blackness the launch struck a channel buoy, capsized, and sank almost immediately.

On the taut ship the cries of the victims were heard coming from the dark waters. All her boats were hoisted, and most of the crew, except the anchor watch, had turned in. But at the first cry for help, the words "Man overboard!" rang through the ship. The ship's organization had provided a man be on the lookout—and he was. Men and officers came promptly from their quarters in pajamas, underwear, or any clothing within reach. Three boats reached the water almost simultaneously, and by the time they were away the searchlights had been manned and were playing over the water. Before the tide could sweep the helpless victims away, sixteen men from the liberty boat had been saved.

Meanwhile, what was happening on the second ship? No one knows exactly. Perhaps the officer of the deck had been engaged in some duty on the far side of the deck; perhaps he had stepped below for a moment. Whatever the facts, the second ship did nothing until the lifeboat from the first ship hailed it in passing in its search for survivors. At this point the officer of the deck innocently inquired about the excitement. The reply of the lifeboat officer unfortunately has not been preserved in the records. Sixteen men owed their lives not to their shipmates, but to the hard-earned discipline of the crew of their sister ship.

A taut ship is not only an effective ship, but to quote a naval axiom, "A taut ship is a happy ship." Aboard a taut ship every officer and every man knows exactly where he stands. Each one knows what is expected of him. Each has complete confidence in his associates and knows that an incompetent shipmate will be brought up with a round turn. Aboard a taut ship there are no soft billets, and there is no man or group of men "getting away with it." The shiftless are dealt with promptly—and dealt with while their offenses are still minor.

SECURING AND MAINTAINING DISCIPLINE

Various ways are suggested for securing discipline. The method that is based on fear of the consequences of disciplinary infractions—that is, the discipline of fear—should be less and less necessary in the modern Navy. Current Navy discipline is based on what we like to consider the American ideal of discipline—a cheerful and spontaneous one, to which men willingly and gladly subject themselves out of belief in the cause for which they are striving and out of respect for and confidence in their leaders.

Men are controlled largely by one of two motives: fear of punishment and hope of reward. Hope of reward is the more desirable stimulus because it results in greater efficiency and harmony. Nevertheless, fear of punishment has its place in obtaining immediate results in certain cases. To use punishment as a club, however, is to admit failure as a leader.

The Navy has wholeheartedly accepted the preventive theory of discipline, which holds that preventing disciplinary problems is more important than trying to cure them. An extensive welfare and recreation program, such as is carried on by many organizations in civilian life, is utilized to develop healthy interests on the part of Navy personnel. Naturally, officers of the Chaplain Corps are dedicated to this work, but the program must be administered by line officers, particularly division officers who are constantly in contact with their men.

Add to this the Navy's training program, which prepares Navy personnel to perform their duties effectively and efficiently, with or without specific instructions. A well-trained, capable group of men working together as a team soon gains a feeling of group accomplishment that fosters pride and loyalty in the organization. This group pride in turn tends to prevent disciplinary breaches that would discredit the organization. Men who know their jobs rarely dislike them, and men who like their jobs seldom get into trouble.

Junior officers and petty officers may have a tendency to be too lenient with minor infractions of discipline, thereby penalizing the good man while favoring the poor one. When this fact is pointed out to the junior officers, they may become uncertain of themselves and, in attempting to correct the fault, become too arbitrary. In either case they lose the confidence of their men.

An officer cannot afford to lose his temper. He may not always find it easy to refrain from anger, but he must make a conscious effort to do so. Otherwise, he loses control of the situation because he loses control of himself. In administering punishment he must be calm, impersonal, and dignified. If, however, he is extremely incensed, precipitous action is unwise; he will find that after pacing the deck for a few minutes, he will be better able to handle the situation constructively. The offender, also, should be given the opportunity to "cool off." The calmer the officer is in his usual performance of duty, the more action he can get when the occasion demands. An officer who is constantly shouting creates confusion and soon ceases to be effective; eventually he gets little or no response from his subordinates.

The relationship that exists between officers and men exerts an important influence on discipline. Officers cannot successfully fraternize with enlisted men or attempt to be "one of the boys." Discipline is undermined quickly by this type of familiarity. If the men presume to become familiar, it is the fault of the officer and not of the men. His actions have encouraged them to do so.

There is a vast difference, however, between familiarity and friendship. The officer who talks to his men in a friendly manner, taking a warm, personal interest in them and becoming concerned with their problems, quickly gains their confidence and respect. The men like to look to their superior for guidance; they want to be proud of him as a good officer. Such an officer, because he is friendly and approachable, will be the first one to whom his men will turn for advice. If he is lacking in these qualities, they will not come to him and, as a result, they may either grow dissatisfied or get into trouble which his counsel might have prevented. Being friendly with enlisted men does not mean being easy with them. An officer may be as exacting as the situation requires, so long as he is just.

Another aid in securing discipline lies in the division officer's method of explaining to his men the rules under which the Navy functions—the Uniform Code of Military Justice. The Code is the basis of authority and discipline in all the services. If these rules are violated, men are punished by a system, not by an individual. Officers and men are urged to study the Code and review it frequently. An officer should encourage his men to ask questions on points that are confusing to them. Worthwhile dividends will accrue in the form of higher standards of discipline.

PRAISE AND BLAME

At this point it may be well to consider carefully the words of John Paul Jones: "No meritorious act of a subordinate should escape attention or be left to pass without reward, even if the reward be only one word of approval. An officer should be universal and impartial in his rewards and approval of merit, so should he be

judicial and unbending in his punishment or reproof of misconduct." It is to be noted that Jones stresses appreciation first and, only if that fails, disciplinary action. The officer who is unfamiliar with the meaning and use of commendation is laboring under a tremendous disadvantage. It is just as important to notice and praise a job well done as it is to censure one poorly done. A word of friendly counsel to the new men, a little encouragement to the easily discouraged, a look of approval to a smart turnout at quarters, a nod of recognition to the missile launcher crew after an exceptionally good performance at drill, or a willing ear to the fellow with a suggestion will do much to keep men loyal to their officers.

If a man works beyond the required number of hours, as frequently happens in preparing the ship for inspection, his effort should not go without a word of praise; and the captain or inspecting officer should be told of the extra effort so that he can add his approbation if he considers it deserved. If a Boatswain's Mate has been working at some job in charge of a party of men and has handled the task quietly and efficiently, he might be commended in this way: "Brown, that was well done." The next time he is assigned to a job, he will take pride in equaling or surpassing the standard that he has established. However, it is poor judgment to administer praise too liberally. The men dislike an excess of it and feel that the officer who praises profusely is either insincere or trying to make himself popular.

On the other hand, what should be done about an individual like coxswain Smith whose motorboat has continually fallen below the required standard of cleanliness?

Heckling and driving may help, but if Smith can be made to take pride and an intelligent interest in his boat, then a great deal has been accomplished. Not only is the boat clean, but Smith has become an asset rather than a likely disciplinary case.

Remember, it is Smith who needs changing. So, encourage him or reprimand him; teach him or guide him; handle him in whatever constructive way your experience gives you the wisdom to do, but do not leave him to muddle along indefinitely.

CONTINUITY OF DISCIPLINE

A breach of discipline cannot be smiled away one day and rebuked the next. Under such a regime, men do not know where they stand, and confusion results. Discipline deteriorates also when rules are not enforced, but rather are winked at. If one regulation is defied openly and with impunity, an indifferent attitude toward other regulations naturally follows. Therefore, a good rule is: Never make a regulation that you cannot or will not enforce.

On the other hand, laxity in the performance of duty cannot be tolerated, and carelessness cannot be condoned. Insubordination must be routed as soon as it appears; any hint of trouble must be promptly forestalled.

Before taking any kind of disciplinary action, however, it is wise to verify all the facts. Situations should be evaluated. For example, it is best to avoid contact with or argument with a drunken man since his judgment and commonsense are not at their best. The master-at-arms should take him into custody until he is sober. This rule, if followed, will save the junior officer many problems.

When disciplinary measures are deemed necessary, they should be administered promptly. Immediate action leaves no doubt in the mind of the offender as to why he is being disciplined. Nothing is gained by delay. Rather, delay generates resentment toward the entire system.

Disciplinary action should be appropriate to the offense. Indiscriminately bringing men to mast for trivial offenses is unwise. On the other hand, the "good Joe," or the officer who under no condition reports a man, is a menace to discipline and a nuisance to his fellow officers. An officer who attempts to curry favor in this way will find his men despising him.

Discipline can be strict without being stiff and formal. Oral reprimands, admonitions, rebukes, or other expressions of disapprobation employed as nonpunitive measures may prove more effective than a stiff court sentence. A

early stage may prevent an appearance at mast or a court-martial later.

Navy disciplinary measures must be justly administered. To accomplish their purpose, such measures must be recognized as just by the offender as well as by his shipmates. The penalty should be of such a nature as not to lower the man's self-respect nor so severe as to be out of proportion to the gravity of the offense. Personal likes and dislikes should never motivate a reprimand nor function in the matter of administering discipline. No matter how exacting a leader may be, if he is fair and just, his subordinates will not only live up to his demands but respect and admire his attitude as well. To find fault with a man who is doing his best is only to discourage him; to discipline a man for incompetence when he has done his best is useless.

The desired goal of the Navy is that quality of discipline which is based on respect for leaders, confidence in justice and fairness, and the compulsion of moral force. Discipline based on force alone cannot endure; lasting discipline must be induced. True discipline develops loyalty and intelligent initiative.

Disciplinary actions are not personal, vindictive, or inflicted as revenge for misconduct. They are not intended to right the wrong that has resulted from an act of dereliction. A young officer bears in mind that when a senior finds it necessary to reprimand him, the senior is acting in the official capacity of discharging his duties. It is a fact that all persons in the naval service are required to obey readily and strictly, and to execute promptly, the lawful orders of their superiors.

Great leaders have always been sound disciplinarians. The following quotation is taken from a letter that George Washington wrote to Colonel William Woodford in 1776. The great general's counsel is as appropriate today as it was when he wrote it.

"The best general advice I can give, and which I am sure you stand in no need of, is to be strict in your discipline; that is, to require nothing unreasonable of your

whatever is required be punctually complied with. Reward and punish every man according to his merit, without partiality or prejudice; hear his complaints; if well founded redress them, in order to prevent frivolous ones. Discourage vice in every shape, and impress upon the mind of every man, from the first to the lowest, the importance of the cause and what it is they are contending for."

PRECEPT AND EXAMPLE

The following quotation is from a letter promulgated by Admiral T.C. Kinkaid, USN, relative to officers' conduct and its influence on enlisted personnel:

"Unless and until officers conduct themselves at all times as officers should, it is useless to demand and hopeless to expect any improvement in the enlisted ranks. Conduct means speech, dress, manner, attitude toward seniors and juniors and vested authority in general. An officer's basic military character is directly and faithfully reflected in all of these things, and he can expect success or failure as a leader in direct proportion to his efforts along these lines. It is not enough that an officer go through the motions. He must constantly strive to cultivate the correct attitude and to make it part and parcel of his everyday existence. If the military philosophy seems all wrong and the enlisted men are unmilitary, uninterested, and irresponsible, let each officer look to himself for the source of trouble, for it is the attitude and conduct of the officer group that make or break the entire democratic military system."

Nothing tends to destroy discipline more readily than the attitude of an officer who by work and deed says to his subordinates, "Don't do as I do. Do as I say." To promote a high quality of discipline, an officer must set high standards by example and precept and insist that they be maintained. No man will extend respect

and loyalty to a superior who allows hypocrisy and insincerity to govern his actions. The officer must practice what he preaches. In this connection, it is well to remember the words of Aristotle: "Men are praised for knowing both how to rule and how to obey, and he is said to be a citizen of approved virtue who is able to do both."

If an officer hopes to receive loyalty and obedience from those under him, he must earn them by demonstrating like qualities. If by word or action he is disloyal to his superiors, the men will doubt his loyalty to them; their loyalty to him will suffer correspondingly. It is essential for the officer to let his men know that he respects and honors the policies and motives of their common senior. With equal zeal he renders loyalty to his men and looks out for them. He takes an interest in them, knows them by name, is zealous about their rights and privileges.

KNOW YOUR MEN

It is the duty of an officer to study his men, watch them, learn their language and point of view, work with them, guide them, and counsel them. Many disciplinary problems can be prevented by the division officer's understanding of his men and knowing their abilities. In this manner the talents and limitations of subordinates can be truly evaluated, and officers can assign them tasks and responsibilities corresponding to their abilities.

If discipline is to be maintained, the division officer must be continually concerned about his men, continually, not merely when they get into difficulties. This means ensuring that his men are as comfortable, well cared for, and contented as circumstances permit, and that they always get their fair share of the privileges. They will then feel that their interests are the division officer's first concern.

In handling his division, an officer should bear in mind that every one wants, needs, and responds to recognition. It is well to remember that each man is to himself the most important person in the world. A division officer should know the names of his men and call them by their names—last names, not first names or

nicknames. When making the rounds in the morning before quarters, the officer should return his men's salutes smartly, giving them a pleasant "Good morning, Wilson," or "Good morning, Smith." Should the officer meet one of his men ashore, he might, as he returns the subordinate's salute, say something appropriate—particularly if the subordinate is with men whom the officer does not know. This gives the enlisted man a sense of recognition just as it does any officer when he is identified by name by a superior.

If the best in men is to be brought out, they must feel important in their own eyes, they must feel respect from their associates, and they must definitely feel competent in the eyes of their superiors. A sense of confidence in themselves and in each other is desirable. When a man is given a job to do, he should be impressed with the fact that he is given that job because he has the ability to perform it satisfactorily. He should feel his importance; he should feel respect for his job because the job he is doing is important.

An officer will need to use all the understanding of human nature that he can gain through experience and study. The better his insight into human nature, the more effective he will be in handling his men. Different levels of intelligence, education, and background, as well as many other human variables, dictate a separate and well-considered approach to each man's problems.

THE IMPORTANCE OF PETTY OFFICERS

Mastless discipline is not a one-man show, nor is it dependent on officers alone. Every petty officer is a technical expert in some line, and his rating badge signifies that he is a leader of men. He is an important part of the ship's disciplinary organization. Therefore, he should be vested with authority. It is wise to work through him, support him, and hold him responsible for results.

The burden of developing good petty officers rests upon division officers. Petty officers require officer supervision. However, it

is not required that officers interrupt them in the midst of a task except in unusual cases involving danger to personnel or valuable material. Division officers often irritate petty officers by encroaching on the sphere of the subordinate's initiative. Sometimes an officer changes the method used by a petty officer for one of his own that is no better and sometimes is worse. The weary patience with which the petty officer makes the change indicates that morale, efficiency, and discipline have not been enhanced.

In such a situation, if a change in method is imperative, it is wise to discuss the matter later with the petty officer, preferably in private, suggesting better methods or techniques in an encouraging manner. Under normal circumstances, nothing is more unfair or creates greater confusion and resentment than for an officer to give orders over a petty officer's head without first advising him that he has been relieved of direct supervision of the particular task.

A petty officer should never be reprovved in public. When this happens, both his authority and morale are undermined. If he is at fault, a private talk will clear up the matter. Above all, the use of sarcasm is to be avoided; a subordinate resents it because it is a weapon that gives unfair advantage to the superior.

Much that has been said regarding the handling of petty officers comes under the heading of tact, which may at times be termed plain common sense—or even uncommon sense. Tact is the oil that lubricates human relations and helps prevent the friction that frequently results in disciplinary problems.

If petty officers are to be held responsible, they must be supported by their division officers. They must be made to feel that they have the confidence and trust of the division officer and that they have responsibility. They must know that they will be allowed to do the assigned job without interference as long as they do it well. They should be made to feel that they have a share and a voice in the management of the division. This can be done in many small ways without interfering in the least with the military authority of the division officer. Above

all, an officer should always be willing to listen to suggestions from his men and accept them if they are good ones.

The men in the division should understand clearly that an order from a petty officer must be obeyed as if it were an order from the division officer, because the petty officer is a part of the chain of command. No insolence or disrespect to a petty officer should escape its merited attention. On the other hand, the petty officers should not be supported blindly, and any tendency on their part to bully or to mete out unnecessary harshness should not be tolerated.

A petty officer's responsibility for the conduct of naval personnel follows him wherever he goes. Even after he leaves the ship, if any trouble develops—such as a fight in a liberty boat or a melee ashore—it is the duty of the senior petty officer present to take over in the absence of a commissioned officer. Later a report to the proper authority is in order. This responsibility cannot be avoided.

Petty officers have an increasingly important role in the disciplinary system. For example, if an enlisted man makes a mistake in the presence of both an officer and a petty officer, it is the duty of the latter to instruct the man. A petty officer who stands and complacently watches a man commit a breach of discipline, without endeavoring to correct him immediately, commits a worse offense than the man he watches. There is no room for the petty officer who is not alert and who is not actively assertive for the good of the ship.

PRINCIPLES OF EFFECTIVE DISCIPLINE

The following principles of effective discipline present in summarized form the ideas developed in this discussion of discipline. These are guides that any young officer will find valuable in his dealings with subordinates.

The happiest and most efficient ships are those wherein the discipline is firm and infractions are punished promptly, uniformly, and adequately.

Men feel more secure if they know that reward and punishment come to them because of their behavior and not because of an officer's whim, mood, or preference.

Consideration, courtesy, and respect from officers toward enlisted men are not incompatible with discipline.

It is not the severity of punishment that restrains men but the certainty of it.

A "Dutch uncle" talk or a private reprimand may save a mast or a court sentence later.

Emphasis should be placed upon keeping men out of trouble, or detecting it before it becomes serious and leading them from it.

Punishment is not personal or vindictive; it is not an instrument of revenge nor a means of righting a wrong. It does, however, furnish an object lesson to the wrongdoer and to others.

An officer must be loyal to his men, take an interest in them, and make sure they are granted rights and privileges. He can drive men to obedience, but he cannot drive them to loyalty.

An officer should not talk or argue with a drunken man but should turn him over to the master-at-arms for safekeeping until sober.

An officer commends publicly and reproves privately.

He gains the confidence of his men and is worthy of it.

He does not lose his temper or use sarcasm and ridicule in dealing with his men.

He does not nag his men, neglect them, coddle them, or play the clown.

He is unbending in the reproof of misconduct—does not allow men to get away with anything.

He uses the Uniform Code of Military Justice as a tool for better discipline.

In maintaining discipline an officer gives his petty officers authority, works through them, supports them, and holds them responsible for results.

Good example on the part of the officers is a prime requisite both in the establishment of discipline and in its maintenance. Officers must practice what they preach.

A ship's company must be said to have been brought to an ideal state of discipline when there exists in it a maximum of efficiency and contentment, combined with a minimum of punishment.

ROLE OF THE UNIFORM CODE OF MILITARY JUSTICE

In civil life, criminal law seeks to protect society from the depredations of its irresponsible members without prejudice to fundamental individual rights by hasty, ill-considered action. Military law must not only restrain individuals for the protection of military society but must assist in assuring that all members of a service march in a prescribed order. For this reason, certain acts which are considered inalienable rights in civil society are offenses in military society. For instance, "telling off the boss" is an inalienable right of the American civilian, but in the military service it may well constitute an offense punishable by court-martial. In civil life, if a man does not like his job he can quit. Such action in the military service might be desertion. In civil life, if a group of people decide they do not like working conditions and jointly walk off the job, that is a strike. In the military service, such action is mutiny.

Discipline is considered to be that attribute of a military organization which enables it to function in a coordinated manner under varying circumstances. Many factors contribute to the attainment of a well-disciplined organization. One of the instruments for achieving and maintaining a high state of discipline is military law.

The trial and punishment of offenders within all branches of the Armed Forces of the United States are governed by a single set of laws—the Uniform Code of Military Justice (UCMJ). The courts that try military personnel are of the same types and operate in basically the same manner, regardless of the service involved.

In addition to the Code, the publications governing the administration of the law in the Navy are the *Manual for Courts-Martial United States*, 1969 (Revised ed.), which is abbreviated as MCM, 1969 (Rev. ed.); and the *Manual of the Judge Advocate General*, which supplements the MCM.

The UCMJ is discussed more fully in the second half of this chapter. Suffice it to say here that a naval officer is responsible for ensuring

that his own knowledge of the code is adequate. The basic essentials of military law and the procedure in naval courts must be thoroughly familiar to him. An officer may be called upon at any time to fill various roles in the conduct of naval courts.

Naval courts are conducted with all the formality and gravity of similar courts in civil life. Every individual participating is there for a definite purpose and has a great responsibility assigned him. Each participant must play his part in maintaining the dignity of the court and ensuring swift, efficient administration of justice. It is essential that the individuals composing such a court have as a background the study of the fundamentals of military law and that they be instilled with a thorough awareness of the importance of their roles in its practical application.

DEALING WITH BREACHES OF DISCIPLINE

When an officer is seeking the truth concerning an alleged offense, he should first question the man making the report and then question the accused, after advising him of his legal rights (discussed later). He should accord little credence to the story of either party until all facts are clear. Before a case is brought to mast, the names of all witnesses should be obtained and the investigation of all details should be completed. If the inquiring officer is convinced that there is a definite case against the alleged wrongdoer, or if he feels that further investigation under more mature judgment of the commanding officer is needed, then and only then should the culprit be reported.

APPREHENSION, ARREST, RESTRICTION, AND CONFINEMENT

Apprehension is the taking of a person into lawful custody. Arrest is the restraint of a person by an order directing him to remain within certain specified limits. Arrest is not imposed as punishment for an offense, and the restraint imposed is binding upon the person arrested, not by physical force, but by virtue of

his moral and legal obligation to obey the order of arrest. A person in arrest cannot be required to perform his full military duties. Moreover, the determinations as to whether there is probable cause to confine the accused and whether, under the circumstances, he should be confined must be made by a neutral and detached magistrate.

In lieu of arrest, an accused person may be restricted to specified areas, without imposing arrest, and it may be provided that he will participate in all military duties and activities of his organization while under such restriction.

Confinement is physical restraint, imposed by either oral or written orders, depriving a person of freedom. Although confinement can be imposed by an oral or written order, it is required that a written confinement order be delivered to the individual in charge of the place of confinement. Confinement is not imposed pending trial unless deemed necessary to ensure the presence of the accused at the trial or because of the seriousness of the offense charged.

INITIATING AND PREFERRING CHARGES

The usual procedure for placing enlisted personnel on report aboard ship consists of submitting the report of a man's charges and necessary details in writing to the executive officer of the ship or to another officer designated by the commanding officer. For example, anyone making a charge may sign a Report and Disposition of Offense(s) slip, which contains the name of the alleged offender, the offense charged, the name of the person making the charge, and the names of any witnesses. Anyone in the naval service may place a person directly on report for a breach of discipline either afloat or ashore. For example, if a man were late in returning to his ship from liberty, the officer of the deck would place him on report as he came over the gangway.

In each instance, the report is sent to the executive officer (or other officer designated by the commanding officer), who makes, or causes to be made, a preliminary investigation of the charges.

If the investigating officer, as a result of his analysis of the facts, feels that the offense warrants disciplinary action, he will make out a charge sheet, swear to it, and sign it. If the investigating officer feels that a court-martial is not called for, as is the case for most reported offenses, he merely reports the facts to the commanding officer, who may have the accused brought to mast for the alleged commission of a minor military offense.

There is no formal method of initiating charges against naval personnel accused of committing offenses against the Code. It might conceivably consist of a telephone call or a letter from a civilian to the commanding officer of a ship or station. The initiating of charges, either aboard ship or ashore, is merely the process of informing the proper authority that an offense has been committed and that a certain individual is suspected of having committed it. Anyone may initiate charges, but only a person subject to UCMJ may prefer them—that is, sign and swear to them.

When the commanding officer has only an official interest (see next paragraph) in the disposition of the case, it is customary for him to direct an officer of his command to make a preliminary inquiry into the suspected offense and to prefer appropriate charges if the facts shown by such inquiry should warrant the preferring of charges.

At this point it would be well to clarify the legal term, "accuser." An "accuser" is defined by the code, in substance, as one who signs charges; directs that charges, which he is in fact preferring, be nominally signed by another; and has other than an official interest in the prosecution. A commanding officer who is, in legal fact, the accuser is precluded from convening either a general or a special court-martial in the particular case. It is advisable, therefore, that if possible he avoid becoming an accuser. A commanding officer who convenes a summary court-martial may be the accuser, but if the accused exercises his right to refuse trial by summary court, the commanding officer may not then convene the special or general court-martial for the trial. A commanding officer in those cases where he does not in truth have any real personal interest

(which will, of course, be the vast majority of cases) should delegate the task of making the preliminary inquiry and the preferring of appropriate charges to a subordinate officer.

Self-incrimination should also be considered at this point, as it relates to the investigation of a suspected offense. Article 31 of the Code forbids anyone subject to the Code to compel any person to answer any question the answer to which might tend to incriminate that person.

By this same article any person subject to the Code is forbidden to interrogate or to request a statement from an accused person or from a person suspected of any offense without first informing him of—

1. The nature of the accusation.
2. The fact that he does not have to make any statement regarding the offense of which he is accused or suspected.
3. The fact that any statement he does make may be used as evidence against him in a trial by court-martial.

In addition, persons subjected to custodial interrogations must be advised that they have the right to consult with a civilian lawyer and have him present during the interview, and that such lawyer may be retained at the individual's own expense or appointed by military authority without cost to the individual concerned. Custodial interrogations are those in which the accused has no choice about reporting to an interrogator.

No statement obtained from any person in violation of Article 31 or through the use of coercion, unlawful influence, or unlawful inducement may be received in evidence against the accused in a trial by court-martial.

The preliminary inquiry normally is an informal proceeding conducted for the purpose of making inquiry into the question of whether an offense chargeable under UCMJ has been committed and whether reasonable grounds exist for the belief that the accused in fact committed the offense. The officer making the preliminary inquiry collects and examines all evidence that is essential to a determination of the guilt or innocence of the accused as well as evidence in mitigation or extenuation.

If, on the basis of his findings, the investigating officer believes that charges should be preferred against the accused, he executes a charge sheet under oath. The charge sheet sets forth the name, organization, and service number of the accused; identifies witnesses, documents, or objects that may be introduced in evidence; and most importantly, lists the charges and specifications. The commanding officer ensures that the accused receives a copy of the charge sheet.

Under the Code, disposition of infractions of discipline or violations of the law is accomplished by two types of proceedings: nonjudicial punishment and courts-martial.

NONJUDICIAL PUNISHMENT (NJP)

Nonjudicial punishment is better known in the Navy as captain's mast, or merely mast, a term derived from the fact that in early sailing days the usual setting for application of this type of naval justice was on the weather deck at the foot of the ship's mainmast.

A commanding officer may, for minor offenses, impose nonjudicial punishment upon the military personnel (including officers) of his command. This authority of a commanding officer is personal and may not be delegated unless he is a general or flag officer. A general or flag officer may delegate the authority to a principal assistant only with the express prior approval of the Chief of Naval Personnel or Commandant of the Marine Corps. Captain's mast constitutes the cornerstone of the whole structure of naval justice and discipline.

The executive officer holds a preliminary investigation, usually just before captain's mast. Although he cannot assume the authority to punish, the executive officer does have the main responsibility for ship's routine, efficiency, and discipline. His purpose in screening mast cases is to ensure that alleged offenses do, in fact, warrant some form of punishment. If conditions justify, he may dismiss the charges against a man. He then furnishes the commanding officer with a list of personnel against whom charges have been preferred during the preceding day(s) and whom he believes should appear at mast.

The captain holds mast for those persons at a time most convenient for all concerned, usually before noon.

The executive officer may stand by to lend assistance in the conduct of the proceedings. A Yeoman or Personnelman stands by with the service records of all men brought to mast. Also standing by are the master-at-arms, accusers, witnesses, and division officers of the accused.

The first action of the commanding officer is to warn all accused as well as any witnesses about the possible effect of their answers to any of his questions; at the same time, he explains their rights. These rights, among other things, encompass not being required to answer any questions that degrade or tend to incriminate them; not being required to make any statement regarding the offenses of which accused; the opportunity to present any matter in defense, mitigation, or extenuation of the alleged offenses; and the right (unless the accused are attached to or embarked in a vessel) to demand trial by court-martial in lieu of accepting nonjudicial punishment. To save time, the captain may conduct a preliminary hearing in which all accused and witnesses are brought before him; he warns them, explains their rights, dismisses them, and then calls the first case.

As each man is called before the captain, the reporting individual and the man's division officer also step forward. The offense is read. The captain then hears the man's statement, if any, and those of any witnesses. The division officer may wish to put in a word, or the captain may wish to ask some questions about the man. The captain carefully examines an accused's service record before he makes a decision. During the entire procedure all the dignity and seriousness of a higher court are maintained.

In passing judgment, the commanding officer may (1) dismiss the case, (2) officially warn the accused, (3) administer an oral or written admonition or reprimand, (4) impose punishment, or (5) order the accused to be tried by court-martial.

Figure 7-2 shows maximum punishments that may be imposed in the Navy as nonjudicial

punishment. Applicable blocks indicate the section of the *Manual of the Judge Advocate General* (JAG Manual) that authorizes deviation from article 15 of the Code (the article authorizing and placing limitations on nonjudicial punishment, quoted fully later in this chapter) in accordance with the doctrine that a departmental secretary (SECNAV) has latitude in applying the article within his department.

In regard to punishments of enlisted members, reduction in grade may be imposed only by a commanding officer who is authorized to promote to the grade from which demoted. Confinement on bread and water or diminished rations may be imposed only upon a member attached to or embarked in a ship but may not be imposed on a petty officer; nor may correctional custody be imposed on a petty officer.

An officer in charge cannot impose disciplinary punishment upon officers. He has the same power as a commanding officer in disciplining enlisted personnel assigned to his unit, but he may not impose a punishment that is greater than that authorized by a commanding officer of pay grade O-3 and below.

At the time the commanding officer informs an accused of his punishment, he also informs him of his right to appeal.

A person (officer or enlisted man) who deems his punishment unjust or disproportionate to the offense may, through proper channels, make a written appeal to the commanding officer's next superior authority. The appeal may include a signed statement of the reasons for regarding the punishment as unjust or disproportionate. Although an appeal is forwarded, the person ordered to be punished may in the meantime be required to undergo the punishment adjudged only if attached to or embarked in a vessel. If the accused is not attached to or embarked in a vessel, such punishment will be stayed pending completion of his appeal. The superior authority ordinarily will hear no witnesses. If he feels there has been a miscarriage of justice he may modify the punishment or set it aside, but he may not increase it, and in no case may he award a different kind of punishment.

Punishment		PUNISHMENT IMPOSED BY			
		Flag or general officer in command	CO if LCDR or above	CO if below LCDR	OIC—any grade
OFFICER	Admonition or reprimand	Yes	Yes	Yes	No
	Restriction	60 days	30 days	15 days —JAG Man. 0101—	No
	Arrest in quarters	30 days	No	No	No
	Forfeiture of pay	1/2 of 1 mo. pay per mo. for 2 mo.	No	No	No
	Detention of pay	1/2 of 1 mo. pay per mo. for 3 mo.	No	No	No
NON-OFFICER	Admonition or reprimand	Any officer commanding, LCDR and above		Commanding officers below LCDR; OICs, any grade	
		Yes		Yes	
	Confinement on B&W or diminished rations	3 consecutive days (only on E-3 and below, aboard ship) —JAG Man. 0101—		3 consecutive days (only on E-3 and below, aboard ship) —JAG Man. 0101—	
	Correctional custody	30 consecutive days (only on E-3 and below) —JAG Man. 0101—		7 consecutive days (only on E-3 and below) —JAG Man. 0101—	
	Forfeiture of pay	1/2 of 1 mo. pay per mo. for 2 mo.		7 days' pay	
	Reduction in grade	To next inferior grade —JAG Man. 0101—		To next inferior grade	
	Extra duty	45 days		14 days	
	Restriction	60 days		14 days	
	Detention of pay	1/2 of 1 mo. pay per mo. for 3 mo.		14 days' pay	

134.180

Figure 7-2.—One or more of the maximum punishments authorized by article 15, UCMJ, may be imposed upon military personnel of their commands by the categories of commanding officers (including officers in charge) shown above. Punishments authorized by article 15 are primarily corrective in nature.

When a commanding officer's punishment is imposed upon a naval officer, it is necessary to make a report by letter to the Chief of Naval Personnel. A notation of this report is made in the next report of fitness submitted upon the officer.

COURTS-MARTIAL

Military offenses, as distinguished from conventional misdemeanors and crimes, may be divided into two classes: those involving neglect of duty, and those involving deliberate violations

of instructions, orders, or regulations. Offenses classified as neglect of duty may result in punishment extending from restriction to that awarded by a court-martial (see figure 7-3). Deliberate violations of instruction, orders, or regulations are usually tried by court-martial; such offenses, as a rule, lie not so much in the consequences of the act as in the defiance of authority. Offenses involving moral turpitude such as theft, forgery, rape, and murder invariably result in trial by either naval court-martial, or by civilian courts if the crime is committed apart from military control areas.

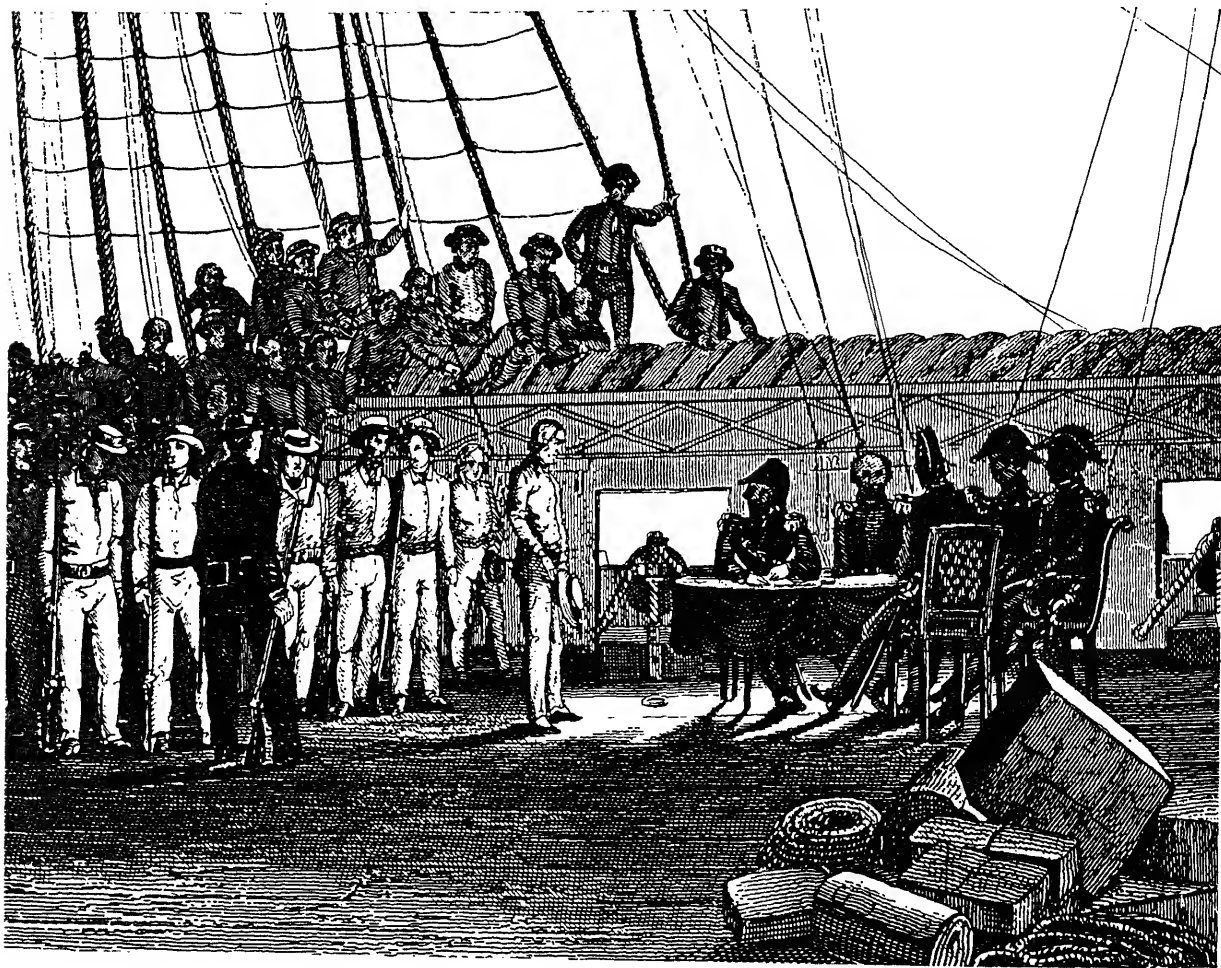


Figure 7-3.—The court-martial has been a military tribunal for hundreds of years. Its aim always has been prompt, efficient administration of military law.

134.43

When nonjudicial punishment is considered inadequate for an offense charged, a commanding officer who is a convening authority may refer the case to one of three types of courts-martial. In ascending order of severity (punishment that may be awarded by the court) these are the summary, special, and general courts-martial.

Summary Court-Martial (SCM)

The function of a summary court-martial is to administer justice for relatively minor (noncapital) offenses promptly and through a simple procedure.

The jurisdiction of a summary court-martial extends only to enlisted personnel. An accused may object to trial by summary court-martial, in which case he may be ordered to trial by either special or general court-martial, whichever is appropriate.

COMPOSITION AND PROCEDURE.—A summary court consists of one commissioned officer, who is called the summary court officer, or simply the summary court. Whenever practicable, the summary court is an officer whose grade is equivalent to lieutenant in the Navy or above. (If the commanding officer is the only officer present, he is the summary court.) It is advisable to have a summary court-martial officer appointed who is not the accuser or who has not previously investigated the case.

The summary court officer is not sworn in as such; he performs his duties under the sanction of his oath of office as a commissioned officer. The convening authority, if he wishes, may order any person under his command to perform the duties of reporter. If a reporter is appointed, he usually is an enlisted man whose task it is to keep a true record of the case.

The formal written accusation in court-martial practice consists of two parts: the technical charge and the specification. The charge indicates merely what article of the code the accused is alleged to have violated, while the specification sets forth the specific facts and circumstances constituting the violation. A specification is written in simple, concise

language and in such a manner as to enable a person of common understanding to know with what offense he is charged. The facts stated include all elements of the offense charged and must exclude every reasonable hypothesis of innocence.

Prior to trial, the summary court officer, having received the charge sheet, checks the charges and specifications to be sure that they are legally correct. He arranges for the presence of the accused and advises him of—

1. The general nature of the charges.
2. The fact that the charges have been referred to a summary court-martial for trial.
3. The name of the officer who appointed the court.
4. The name of the accuser
5. The names of contemplated witnesses.
6. His (the accused's) right to—
 - a. Cross-examine witnesses or have the court ask questions which the accused desires answered.
 - b. Call witnesses or produce other evidence, with the assurance that the court will assist him to do so.
 - c. Testify or remain silent.

The summary court advises the accused of his right to object to trial by summary court-martial, regardless of whether he has been permitted and elected to refuse punishment under article 15.

During the trial the summary court represents both the Government and accused. Witnesses, testifying under oath, are examined by the summary court, who conducts the entire trial. In the absence of a plea of guilty, he thoroughly and impartially investigates both sides of the matter and ensures that the interests of both the Government and the accused are safeguarded. If the accused is found guilty of an offense, the summary court advises him of his right to submit any matter in extenuation or mitigation, including the making of an unsworn statement.

AUTHORIZED PUNISHMENTS.—A summary court-martial may adjudge any punishment not forbidden by the Code

(forbidden punishments are contained in article 55, which is discussed later) except death, dismissal, dishonorable or bad conduct discharge, confinement for more than 1 month, hard labor without confinement for more than 45 days, restriction to specified limits for more than 2 months, forfeiture of more than two-thirds of 1 month's pay, or detention of more than two-thirds of 1 month's pay.

In addition to, or in lieu of, other punishments, all courts-martial may adjudge reprimand or admonition.

The maximum amount of confinement and forfeiture of pay, or of confinement and detention of pay, may be adjudged together in one sentence. (Detention of pay is a less severe form of punishment than a forfeiture, because the amount detained is ultimately returned to the accused.)

Since confinement and restriction to specified limits are both forms of deprivation of liberty, only one of those punishments may be adjudged in maximum amount in any one sentence. An apportionment must be formulated if it is desired to adjudge both forms of punishment—confinement and restriction to specified limits—in the same sentence.

In case of enlisted persons above the fourth enlisted pay grade, summary courts-martial may not adjudge confinement, hard labor without confinement, or reduction except to the next inferior rate.

At the conclusion of the trial, the summary court notifies the accused of its findings and, if the accused is convicted, the sentence of the court. The punishment, if any, is entered in the ship's log, and an entry is made in the man's service record.

Special Court-Martial (SpCM)

For offenses that warrant greater punishment than a summary court-martial can adjudge, a commanding officer may convene a special court-martial to try any enlisted person or officer in his command. The SpCM has

jurisdiction to try anyone subject to the Code for any noncapital offense made punishable by UCMJ, as well as for certain capital offenses. The convening authority draws up a convening order that specifies the time and place of meeting of the SpCM and indicates the composition of the court.

COMPOSITION.—Special courts-martial consist of—

1. Not less than three members.

2. A military judge (certified as a judge by the Judge Advocate General) and not less than three members.

3. Only a military judge, if one has been detailed to the court, and the accused, knowing the identity of the judge and after consultation with defense counsel, requests in writing a court composed only of a military judge, and the military judge approves.

The convening authority appoints a reporter to keep a record of the proceedings of and testimony taken before the court-martial.

An accused enlisted person may request (unless the court consists of only a military judge) that the court's membership include enlisted personnel. There are two restrictions upon this right: first, the enlisted members of a court may not be members of the same unit as the enlisted person being tried; and second, the accused must make the request personally and in writing before the court is assembled. When the request is granted, enlisted personnel comprise at least one-third of the court's membership. If enlisted persons meeting the qualifications cannot be obtained because of physical conditions or military exigencies, the convening authority appends to the record of trial a statement explaining why enlisted persons were unobtainable.

When it can be avoided, no person in the Armed Forces is tried by a court-martial, any member of which is junior to him in grade; e.g., an officer should be tried only by a court-martial composed of officers senior to him on the same promotion list.

Members of courts-martial should be of the same branch of the Armed Forces as the

accused. A commander of a joint command or joint task force, however, when specifically empowered by the President or the Secretary of Defense, may appoint as court-martial members any eligible persons of his command or of another command when they are made available to him. In exceptional cases, a Judge Advocate General may authorize a commanding officer of other than a joint command or task force to appoint members of other branches of the Armed Forces to serve on courts-martial.

COURT PROCEDURE.—The senior member of the special court-martial is the president; his grade should not be below lieutenant. The military judge, if one is detailed to the court, must be a member of the bar of a Federal court or of the highest court of a state and must be certified as qualified for such duty by the Judge Advocate General.

The president (or military judge, if one is detailed) presides over each open session of the court-martial, assuming responsibility for the fair and orderly conduct of the proceedings in accordance with law. During the trial he rules upon interlocutory questions and advises the court on aspects of legal procedure that arise. Before the court closes to vote on the findings, he instructs it as to the elements of each offense charged, the presumption of innocence, reasonable doubt, and burden of proof. Before the court closes to vote upon a sentence, he advises it as to the maximum authorized punishment for each offense of which the accused has been found guilty.

If the military judge is the only member of the court, he of course has sole responsibility for conduct of the trial, including the findings and imposition of a sentence for a finding of guilty. Otherwise, he is not considered a member of the court *per se*, and does not vote with the members.

The convening authority appoints an officer as trial counsel to conduct the case for the Government (act as prosecuting attorney) and another officer to act as defense counsel for the accused. An accused will be afforded the right to have certified counsel for his defense. If at all possible, trial counsel should be certified to act as judge advocate.

The accused, it should be pointed out, has the right to be represented (before either a special or general court-martial) by civilian counsel at his own expense if he so desires, by military counsel of his own selection if such is reasonably available, or by the appointed defense counsel.

Members of special courts-martial hear the evidence, determine the guilt or innocence of the accused, and, if the accused is found guilty, adjudge a proper sentence. Each member has an equal voice and votes with other members in deliberating upon and deciding all questions submitted to vote.

In most cases, convictions and sentences require a two-thirds majority. In special courts-martial without a military judge, all other questions, such as those on challenges and interlocutory questions, are decided by a simple majority. A tie vote on a challenge disqualifies the member challenged. A tie vote on a motion for a finding of not guilty or on a question of accused's sanity is a determination against the accused. A tie vote on any other question is a determination in favor of the accused.

Voting is by secret ballot, and each member must vote. The junior member counts the votes, and the president verifies the count and announces the result of the ballot to the members of the court.

If a fraction results when the votes are counted, such fraction counts as one in favor of the accused; thus, if five members are to vote, a requirement that two-thirds concur is not met unless four concur.

AUTHORIZED PUNISHMENTS.—Special courts-martial may, under such limitations as the president may prescribe, adjudge any punishment not forbidden by the Code, except death, dishonorable discharge, dismissal, confinement for more than 6 months, hard labor without confinement for more than 3 months, forfeiture of pay exceeding two-thirds pay per month for 6 months, or (for enlisted) detention of pay for more than two-thirds pay per month for 3 months. A bad-conduct discharge may not be adjudged by a special court-martial unless (1) a military judge was detailed to the trial, except

in any case in which a military judge could not be detailed because of physical conditions or military exigencies; (2) a qualified counsel was detailed to represent the accused; and (3) a complete and verbatim record of the proceedings and testimony was made.

As with summary courts-martial, special courts-martial are not limited to one kind of punishment. Apportionment of confinement or restriction, and of forfeiture or detention of pay may be formulated as in the summary court-martial. In adjudging a bad conduct discharge, the court-martial cannot also adjudge forfeiture of all pay and allowances, but it may properly adjudge a forfeiture of two-thirds pay per month for not more than 6 months.

General Court-Martial (GCM)

A general court-martial is the highest military tribunal. It may be convened only by the President, the Secretary of the Navy, a flag officer in command of a unit or activity of the Navy or Marine Corps, the commanding officer of a naval station or larger shore activity beyond the continental limits of the United States, and such other officers as may be authorized by the President or SecNav.

A GCM has jurisdiction to try any person subject to the code for any offense made punishable by the code. It also may try anyone who by the law of war is subject to trial by a military tribunal.

No charge may be referred to a general court-martial for trial until it has been thoroughly and impartially investigated. At this pretrial investigation the accused has the rights to be represented by counsel, to cross-examine available witnesses, to present anything he desires in his own behalf, to have the investigating officer examine available witnesses, and to make any statement he desires. If, as a result of the investigation, it appears that the case should be referred to a general court-martial, the investigating officer makes a formal report to the officer who directed the investigation.

Ordinarily, the pretrial investigation is ordered by the commanding officer of the accused and the report is forwarded by him, with appropriate recommendation, to the officer exercising general court-martial jurisdiction.

When an officer who exercises general court-martial jurisdiction receives the charges, report of investigation, and allied papers, he refers them to his staff judge advocate for consideration and advice. Before he refers a charge to a general court-martial, the officer exercising general court-martial jurisdiction assures himself that the charge alleges an offense under the code and that trial is warranted by evidence indicated in the report.

COMPOSITION.—A general court-martial consists of a military judge and not less than five members. The convening authority appoints a trial counsel and a defense counsel—both of whom are lawyers, properly certified—as well as such assistants as he deems necessary. Note that the presence of a military judge is mandatory, as are the qualifications of counsel.

Trial provisions (some already mentioned) of special courts-martial apply also to general courts-martial: the president should not be below the grade of lieutenant; officers may be tried only by officers; warrant officers may be tried only by officers and/or warrant officers; enlisted persons may be members under certain conditions; and, if possible, no member of the court should be junior to the accused.

COURT PROCEDURE.—The responsibilities of the military judge, members of the court, and counsel are the same as in special courts-martial. As already pointed out, the principal difference between a special and general court-martial is the greater severity of punishment possible at the latter.

A conviction of any offense that carries a mandatory death penalty requires the concurrence of all members present; and no person may be sentenced to death unless all members present concur. A three-fourths majority of all members present is required to vote a penalty of life imprisonment or

confinement in excess of 10 years. Convictions of offenses not carrying a mandatory death penalty require a two-thirds majority; and all sentences, other than death, life imprisonment, or confinement in excess of 10 years, require the vote of two-thirds of the members present when the sentence is voted on. All other questions to be decided by the members require, as in a special court-martial, a simple majority.

AUTHORIZED PUNISHMENTS.—A general court-martial can adjudge any punishment not forbidden by article 55 of UCMJ, including death (when specifically authorized by the Code, such as for desertion in time of war, mutiny, sedition, or spying), confinement for life, dishonorable discharge, bad conduct discharge, dismissal of an officer, and total forfeiture of pay during the remaining period of an accused's obligated service.

Reviews of Courts-Martial

When a person has been tried and convicted by court-martial, the machinery for review of the court's findings and sentence is automatically set in motion.

Review means study by higher authorities, or by a higher court, to determine whether the trial court acted correctly, whether the accused was denied any rights to which he was entitled, and whether the sentence was illegal or too severe. A review is very much like an appeal from a civilian trial court to a higher court and is designed to accomplish the same purpose. The important difference is that reviews of court-martial trials are automatic; that is, every convicted person in the service is entitled to a review at no cost. At several stages before the review is finished, findings may be set aside in whole or in part; charges may be dismissed; or the sentence may be reduced, but it may never be increased.

The convening authority (CA) reviews the record of each court-martial convened by him, after his staff judge advocate or legal officer has studied the complete record and rendered an opinion to the CA concerning adequacy and

weight of evidence in the case, irregularities respecting the proceedings, and so on. With this opinion before him, the CA may, among other actions, approve or disapprove the findings and sentence, or any part of them, direct a rehearing, or take such other action as is provided by the Code. When a trial results in an acquittal or a finding of not guilty, however, the CA may not disturb the result or send the case back to the court for reconsideration.

In the case of a summary or special court-martial, the CA forwards the record, with his recommendations, to the superior exercising general court-martial jurisdiction over the command for further review. A staff judge advocate furnishes that superior with a second legal opinion on the merits of the case. The officer exercising general court-martial jurisdiction may, with reason, override the action of the CA. There might be, for example, a fatal error not discovered by the CA's legal officer which would necessitate a rehearing. In any event, the superior exercising general court-martial jurisdiction may, in the interest of justice, set aside in whole or in part the findings of guilty and the sentence, thereby restoring any rights and privileges affected by the part of the sentence set aside. He may mitigate or suspend any part or amount of the unexecuted portion of the sentence. (Many sentences may be ordered executed upon their approval by the CA.)

The record of trial for a special court-martial involving a bad-conduct discharge, with the recommendations of both the CA and the officer exercising general court-martial jurisdiction, is forwarded to the Office of the Judge Advocate General.

The CA who convenes a general court-martial ordinarily forwards the general court-martial record of trial by self-convened general court-martial direct to the Office of JAG (the CA having general court-martial jurisdiction, no intermediate review is needed).

Within the Office of the Judge Advocate General is a Court of Military Review, consisting of three-judge appellate review panels, which has the function of reviewing the record of every case in which an approved sentence affects a flag officer or in which a sentence imposes the death

penalty, the dismissal of an officer, a dishonorable or bad-conduct discharge, or confinement for 1 year or more (the appellate military judges may be commissioned officers or civilians). General courts-martial not included in the categories of those automatically reviewed by the Court of Military Review are reviewed by other qualified lawyers in the Office of JAG.

A review panel considers all the facts and law involved in any case under review. It may, among other actions, reduce the sentence to whatever penalty it thinks appropriate, set aside the entire findings and sentence and order a rehearing, or order the charges dismissed. The Judge Advocate General, unless there is to be further action by the Court of Military Appeals, normally instructs the convening authority to take action in accordance with the decision of the Court of Military Review.

Upon the request of a convicted offender whose trial record is before the Court of Military Review a qualified lawyer is assigned to represent him before the court.

COURT OF MILITARY APPEALS.—Above the Court of Military Review is a “supreme court” of military justice, the Court of Military Appeals, composed of three civilian judges appointed by the President and confirmed by the Senate.

Every offender whose conviction has been passed upon and upheld by the Court of Military Review has the right to petition the Court of Military Appeals to review his case. Such appeals are automatic, only when the sentence as affirmed by the Court of Military Review affects a general or flag officer or extends to death. In all other cases, if the petition is granted by the high court, the convicted person is entitled to a lawyer, who will prepare a brief for him and argue his case before the court. If the accused desires, he may employ civilian counsel.

Naval Personnel and Civil Court Actions

The fact that a man is in the naval service does not free him from his obligation to obey the laws governing the civilian population. Naval personnel are subject also to civil courts when

they are within their jurisdiction. Commanding officers afloat and ashore are authorized to permit the service of subpoenas or other process upon the person named therein, provided such person is within the jurisdiction of the court out of which the process is issued.

In some circumstances a commanding officer has authority to deliver naval personnel to civil authorities upon proper warrant; in others, such delivery requires the specific authorization of the Secretary of the Navy. For example, the commanding officer of a naval station located in a given state is authorized to deliver personnel of his command to civil authorities of that state when proper warrant is presented. If delivery is sought by some other state and extradition is not waived, the commanding officer must not transfer or order the member out of the state in which he is then located without the permission of SECNAV (JAG). Such authorization is also required if disciplinary proceedings involving military offenses are pending or if the person sought is undergoing a sentence of a court-martial.

If a Navy man is held by civil authorities, he should take steps to have his commanding officer notified at once of the pertinent facts. If he is acquitted, of the offense for which he was apprehended by the civilians, his enforced absence normally will not be punished when he is released. If he is already absent without leave when detained by civil authority, the entire period of absence is considered as time lost for pay purposes, regardless of whether he is subsequently released without trial or is tried and acquitted by civil authority. But if he is convicted by the civil authorities the fact that he was arrested, held, and tried, does not excuse any unauthorized absence.

Vacation of Suspension

If either a general court-martial sentence, or a special court-martial sentence that includes a bad conduct discharge, has been suspended, and the serviceman is later accused of violating probation, he must be given a hearing by an officer having special court-martial jurisdiction before the suspension can be vacated and the

sentence executed. At this hearing the accused is entitled to be represented by a competent counsel if he so requests. The record of the hearing and the recommendations of the officer having special court-martial jurisdiction are forwarded for action to the officer exercising general court-martial jurisdiction over the probationer. In any case, the review procedure which has been described must be completed before any suspended sentence may be executed.

An official letter that is written for the sole or chief purpose of making a final adversely critical determination of allegations of misconduct, error in judgment, or unsatisfactory performance of duty on the part of an officer, and that is destined for inclusion in the official record of that officer in the Bureau of Naval Personnel, is an "admonition" or "reprimand," and a "punishment" under the Uniform Code of Military Justice. Such a punitive letter of censure may be imposed as commanding officer's nonjudicial punishment or as a result of sentence by court-martial. This is true whether or not the censorious letter has the word "admonition" or the word "reprimand" as its subject or in the body of the letter.

The customary form for such a letter is an official letter addressed to the officer concerned, bearing the subject "Reprimand" or "Admonition" (in descending order of severity under naval usage). It contains a specific, narrative, factual description of the time, place, and circumstances of the acts or omissions of the officer concerned and of any consequences thereof; concluding that the officer is blameworthy under the circumstances set forth and that he is, by the letter addressed to him, "reprimanded" or "admonished." It informs him that a copy of the letter will be filed in his official record and advises him as to any right that he may have to appeal and/or submit a written statement concerning the punitive letter.

Although the immediate commanding officer is expressly empowered to address letters of censure to officers and warrant officers of his command as nonjudicial punishment administered in accordance with article 15 of the Code, departmental policy discourages

exercise of such authority by commanders who are not flag officers. Such commanding officers normally recommend to a superior of flag grade in the chain of command that his office address the punitive letter of censure. In cases of unusual gravity or in cases involving very senior officers, it may be recommended that letters of censure be addressed by the Chief of Naval Personnel, the Chief of Naval Operations, or the Secretary of the Navy.

Effect of Censure

A letter of censure normally represents final determination, adverse to the officer censured, of charges, allegations, or complaints against him. Under the code, an officer who has been addressed a letter of censure for a minor offense may not be thereafter convicted before a court-martial of the identical offense for which he was censured. If, however, the offense was a major one initially, or if a more serious offense has grown out of a minor offense for which the officer was censured, a letter of censure constitutes no bar to subsequent court-martial trial.

Whether or not any trial or other action follows the letter of censure, the filing of such a letter in an officer's official record is a matter of serious consequence, both immediate and long-range. The record is utilized in numerous connections, including determination of future assignments of the officer, consideration for selection for promotion, consideration for special training, consideration for transfer to another Corps or category, and evaluation in the Department of any subsequent adverse reports or complaints concerning the officer. Such an officer is naturally at a disadvantage when he is being considered in competition with others who have comparable experience and ability and whose records are unblemished. However, contrary to a frequently encountered assumption, there is no unwritten law of the Navy precluding favorable consideration of an officer who has been censured on one or even more occasions. Consistently outstanding performance on the part of the censured officer may in time offset the effects of the censure.

Among the more frequently occurring causes for censure of officers are carelessness in the custody of registered publications and negligence in the performance of collateral duties, such as mess treasurer or auditing board duties. Such duties often constitute a junior officer's first independent responsibility and his first experience with business management and accounting procedures. There is, therefore, a great temptation to drift along, blindly following forms and procedures previously employed, and relying without question upon the assurances of subordinates. Among other occasions for censure of officers are minor security violations, failure to comply with censorship regulations and procedures when such are in effect, negligently damaging or failing to account for Government property, neglect of obligations to creditors or legal dependents, sharp or unethical private dealings, and isolated incidents of drunkenness while off duty or of boorish social behavior. Whether censure or more serious disciplinary action results from any of the actions described above depends, of course, on the seriousness of the offense and on the surrounding circumstances.

DISCIPLINARY SEPARATIONS FROM THE SERVICE

In addition to dismissal pursuant to sentence of a general court-martial or by order of the President, and dropping from the rolls as provided under the Code and other sections of the legislation which enacted the Code, statutes provide other means for separations of officers. Officers are subject to revocation of their commissions prior to the time that they complete three years of continuous commissioned service. Regular Navy officers who hold permanent commissions and who have completed less than 20 years' service are subject to discharge if reported as unsatisfactory in the approved report of selection boards considering them for promotion. Lieutenants (junior grade) and lieutenants are subject to discharge upon twice failing selection for promotion. Congress may at any time by law provide for separation of officers under other stipulated circumstances. An officer facing or anticipating disciplinary

action may submit a resignation from the service, and his separation may be effected if the Secretary of the Navy accepts the resignation.

Officers separated from the service, other than by dismissal or dropping from the rolls, normally receive one of three forms of discharge certificate, i.e., Certificate of Honorable Discharge, Certificate of General Discharge (under honorable conditions), or Certificate of Discharge (under conditions other than honorable). The type of discharge certificate awarded in any particular case is governed by the circumstances prompting separation and the quantitative and qualitative character of previous service rendered.

The "character" of an officers' separation (i.e., whether "under honorable conditions," "under conditions other than honorable," or other descriptive phraseology) represents the opinion of the naval service relative to the circumstances attending the separation. The character of separation is important in connection with veterans' benefits. Further, many employers are inclined to refuse either initial or continued employment to persons who have been separated from any branch of the Armed Forces with an inferior type of separation. Bar associations and boards of professional and occupational groups that have regulatory powers sometimes inquire searchingly into previous armed service experience and the character of separation received.

Naval Reserve officers on active duty are subject to separation in the same manner as officers of the Regular Navy. They are subject to the Code from the date they are required to obey lawful orders for duty or training in the Armed Forces. Reserve officers on inactive duty training are subject to the Code so long as they have voluntarily accepted written orders authorizing such training and specifying that they are subject to the Code while undergoing such training.

While not on active duty, Reserve officers are subject to discharge (1) if they are found not physically qualified for active service; (2) if they have attained certain stipulated ages; and (3) if there is full and sufficient cause in the discretion of the Secretary of the Navy. Prior to discharge

for cause, a Reserve officer is required to be given notice by letter of the projected action and an opportunity for a hearing concerning it.

FACT-FINDING BODIES

Incidents that require investigation occur almost daily. For example, when a ship is involved in a collision or has an accident that requires repairs, when an aircraft is lost or damaged, when there is a serious fire, and when naval personnel are injured or die from an accident or under peculiar circumstances, the commanding officer must find out what happened, why it happened, how it happened, and to whom. His method of learning the facts in the case is to appoint a fact-finding body, usually composed of one or more officers, to investigate the incident for him.

The reporting of facts by investigative bodies is necessary in order that the Navy may be more efficiently managed. For instance, fact-finding reports on aircraft accidents are routed to the Naval Air Systems Command. If an accident discloses a material or equipment failure, that command might issue new regulations or instructions to forestall another accident of the same type. In another field, it is important that all the facts upon which may depend future rights and benefits be gathered and preserved at the time a personal injury occurs. If necessary to determine whether misconduct or actions not in the line of duty are involved, favorable findings should be made a matter of record to protect the persons involved.

The primary function of a fact-finding body is to develop and consider evidence related to the matter under investigation; to arrive at clearly expressed findings of fact based on that evidence; and, if directed, to offer opinions and recommendations.

The main purpose of a fact-finding body is to provide convening and reviewing authorities with adequate information on which to base decisions in the matters involved. Fact-finding bodies are administrative, not judicial. Their reports, therefore, are purely advisory.

There are two types of administrative fact-finding bodies: courts of inquiry and

investigations. The composition of a fact-finding body depends in part upon the nature of the investigation. A court of inquiry is always formal; investigations may be either formal or informal.

The order appointing a court of inquiry or a formal investigation is in official letter form and signed by the convening authority. A court of inquiry is composed of at least three commissioned officers and counsel; a formal investigation must be conducted by one or more commissioned officers. An informal investigation may be appointed orally or in writing, and may consist of one or more officers, senior enlisted persons, or senior civilian employees of the Department of Defense. The appointing order contains explicit instructions as to the scope of the inquiry.

A formal fact-finding body utilizes a formal hearing procedure, ordinarily takes all testimony under oath and maintains a verbatim record of all evidence, and may be authorized to designate parties. On the other hand, an informal fact-finding body normally employs the preliminary inquiry method of gathering evidence, using telephone inquiries, correspondence, and informal interviews to assemble the required information; it is not authorized to designate parties.

A court of inquiry always is a formal investigative proceeding, authorized by statutes of the United States to order persons subject to the laws of the United States to appear before it, answer questions, and produce written matter or other material in their custody. It is convened by a written order, takes all testimony under oath, and records all proceedings verbatim. A court of inquiry has the power to subpoena witnesses.

An investigation is a purely internal investigative proceeding within the branch of the Armed Forces concerned. It is established and governed solely by directives of the Secretary, and, at the utmost, its powers cannot extend beyond those of the Secretary. In the naval service an investigation may be made by one or more persons, may or may not have counsel to assist it, and may be conducted in a manner similar to a judicial trial (i.e., with witnesses under oath, direct and cross-examination, a

verbatim transcript of proceedings); or it may be conducted less formally, with narrative summaries of the information given by witnesses or copies of written statements or other material supplied by them. As stated, it may be formal or informal, but normally it does not have the power to subpoena civilian witnesses.

Based upon the information obtained by it, the court of inquiry or investigation makes "findings of fact," and if—but only if—so directed by the authority ordering the proceeding, may also express "opinions" concerning the matter investigated and/or "recommendations" as to future action that should be taken. To illustrate, a court of inquiry that was directed only to inquire into circumstances surrounding the destruction of a naval airplane might include in its "findings of fact" statements to the effect that at a certain time the plane was proceeding west at a speed of _____ mph, at an altitude of _____ feet above the eastern end of the _____ runway of _____ field; that at such time the wheels of the plane and its landing flaps were up; and that _____ seconds later the plane struck the ground _____ feet from the eastern end of the runway. The court would not "find" that the pilot of the plane was "inadequately trained" or "incompetent," these being expressions of opinion; nor would it "find" that training of naval pilots in landing techniques should be amplified, which is a recommendation. If the appointing order specifically directed the court to express opinions, to submit recommendations, or both, then it should explore the "how" and the "why," but in the absence of such a direction, it is required to limit itself to "who, what, when, and where."

EFFECT OF PROCEEDINGS

The findings of facts, opinions, or recommendations of a court of inquiry or investigation have no binding legal effect, within or outside the service. That is to say, the fact that a naval court of inquiry investigated an automobile collision and found that it occurred in a certain way in no way invalidates or discredits subsequent different and

irreconcilable findings by a civil court, administrative body, or a naval court-martial. For this reason the expression that an officer has been cleared by a court of inquiry (of culpability in a particular connection) is inaccurate. A court of inquiry cannot clear any more than it can convict. Its findings of facts and opinions or recommendations are only advisory. The appointing authority, his superiors, or any person who is subsequently required to re-examine the same matter in any official connection may accept or reject all or any part of the findings.

The court of inquiry is the most formal type of administrative fact-finding body. Other fact-finding bodies may be conducted with virtually all, some, or none of the same formality, depending on the prevailing circumstances. An officer assigned to conduct or to participate in an investigation should (1) read carefully the appointing order; (2) review pertinent provisions of the *Manual of the Judge Advocate General*; and (3) to the greatest extent practicable, in advance of questioning and writing, familiarize himself with the matter to be investigated, by carefully studying any pertinent written material, inspecting the locale, and carrying on unrecorded conversations with witnesses, in which the investigator confines his activity chiefly to listening and silent analysis.

UNIFORM CODE OF MILITARY JUSTICE

Until 1951, the various branches of our Armed Forces functioned under different military codes. The Army and Air Force were guided in the administration of discipline and in legal processes by the Army's Articles of War; the Navy, by the Articles for the Government of the Navy ("Rocks and Shoals"); and the Coast Guard, by the Disciplinary Laws of the Coast Guard. It was not surprising, then, if an act that was considered an offense in the eyes of the Navy was not so judged by the Army. Even if an act was a breach of discipline in all branches of the Armed Forces, there were variances in the type of trial and severity of punishment awarded.

Following the passage of the National Security Act of 1947, it was recognized that a homogeneous code of military justice was a logical and necessary unification measure. After long investigation by various committees, James Forrestal, the Secretary of Defense, appointed an interservice committee to prepare a uniform code applicable to all branches of the Armed Forces. Following intensive study, the committee drafted what is now known as the Uniform Code of Military Justice (hereafter referred to as the Code), which was passed by Congress on 5 May 1950, signed into law by the President, and became effective 31 May 1951. The *Manual for Courts-Martial*, United States 1951 (MCM, 1951), which consolidated and standardized varying military legal procedures, became effective the same date.

By Act of 10 August 1956, the original law, as amended, was repealed and reenacted, without substantial change, as Chapter 47 of Title 10, United States Code. Chapter 47 contains, as sections 801-940 (10 USC 801-940), the 140 articles of the Code.

In 1963, a tri-service committee was appointed to revise the MCM, mainly because of case decisions of the Court of Military Appeals which required redefinition of some punitive articles. The revised manual was signed by President Johnson on 11 September 1968, and became effective 1 January 1969, making the *Manual for Courts-Martial*, United States 1969, the new touchstone of military justice.

About a month after he signed the Executive Order promulgating the 1969 manual, the President signed into law the Military Justice Act of 1969, which requires increased lawyer participation in courts-martial and provides for other changes in court-martial procedure. The main provisions of that Act became effective 1 August 1969, but they made necessary a substantial revision of the new MCM.

Everyone in the Armed Forces must be familiar with the Code. The Code itself (in article 137) requires that certain articles of the Code be explained periodically to enlisted personnel:

ART. 137. ARTICLES TO BE EXPLAINED

“Articles 2, 3, 7 through 15, 25, 27, 31, 37, 38, 55, 77 through 134, and 137 through 139 of this code shall be carefully explained to each enlisted member at the time of his entrance on active duty, or within six days thereafter. They shall be explained again after he has completed six months of active duty, and again at the time when he reenlists. A complete text of the Uniform Code of Military Justice and of the regulations prescribed by the President thereunder shall be made available to any person on active duty, upon his request, for his personal examination.”

It is the duty of each naval officer to be fully aware of the substance and meaning of the specified articles.

The “regulations prescribed by the President” are contained in MCM, 1969 (Rev. ed.), with implementing regulations included in the *Manual of the Judge Advocate General*. Texts of articles designated by article 137 should be posted in a conspicuous place, readily accessible to personnel of the command.

The remainder of this chapter consists of the articles specified by article 137; included, where appropriate, are explanations. The notes are based on the *Manual for Courts-Martial*, which should be consulted for more complete information on the provisions of the code.

ART. 2. PERSONS SUBJECT TO THIS CODE

“The following persons are subject to this code:

“(1) Members of a regular component of the armed forces, including those awaiting discharge after expiration of their terms of enlistment; volunteers from the time of their muster

or acceptance into the armed forces; inductees from the time of their actual induction into the armed forces; and other persons lawfully called or ordered into, or to duty in or for training in, the armed forces, from the dates when they are required by the terms of the call or order to obey it.

“(2) Cadets, aviation cadets, and midshipmen.

“(3) Members of a reserve component while they are on inactive duty training authorized by written orders which are voluntarily accepted by them and which specify that they are subject to this code.

“(4) Retired members of a regular component of the armed forces who are entitled to pay.

“(5) Retired members of a reserve component who are receiving hospitalization from an armed force.

“(6) Members of the Fleet Reserve and Fleet Marine Corps Reserve.

“(7) Persons in custody of the armed forces serving a sentence imposed by a court-martial.

“(8) Members of the Environmental Science Services Administration, Public Health Service, and other organizations, when assigned to and serving with the armed forces.

“(9) Prisoners of war in custody of the armed forces.

“(10) In time of war, persons serving with or accompanying an armed force in the field.

“(11) Subject to any treaty or agreement to which the United States is or may be a party or to any accepted rule of international law, persons serving with, employed by, or accompanying the armed forces outside the United States and outside the following: the Canal Zone, Puerto Rico, Guam, and the Virgin Islands.

“(12) Subject to any treaty or agreement to which the United States is

or may be a party or to any accepted rule of international law, persons within an area leased by or otherwise reserved or acquired for the use of the United States which is under the control of the Secretary concerned and which is outside the United States and outside the following: the Canal Zone, Puerto Rico, Guam, and the Virgin Islands.”

The following provisions of article 2 should be noted particularly:

1. Any person serving a sentence imposed by a court-martial remains subject to the Code. Thus, a prisoner who is serving a court-martial sentence may be tried for a crime he commits while a prisoner, even though his term of enlistment had expired at the time of commission of the crime.

2. A Reservist on inactive duty training is subject to the Code when (a) the training is authorized by written orders; (b) the orders are voluntarily accepted by him; and (c) the orders specify that the Reservist is subject to the Code.

3. A Reservist ordered into the active military service is subject to the Code from the date he is required by his orders to report for active duty.

The United States Supreme Court has held unconstitutional the exercise of court-martial jurisdiction over civilians in time of peace.

ART. 3. JURISDICTION TO TRY CERTAIN PERSONNEL

“(a) Subject to article 43,¹—no person charged with having committed, while in a status in which he was subject to this code, an offense against this code, punishable by confinement of five years or more and for which the person cannot be tried in the courts of the United States or of a State, a Territory, or the District of Columbia, may be relieved from amenability to trial by court-martial by reason of the termination of that status.

¹—Concerns statutes of limitations.

“(b) Each person discharged from the armed forces who is later charged with having fraudulently obtained his discharge is, subject to article 43, subject to trial by court-martial on that charge and is after apprehension subject to this code while in the custody of the armed forces for that trial. Upon conviction of that charge he is subject to trial by court-martial for all offenses under this code committed before the fraudulent discharge.

“(c) No person who has deserted from the armed forces may be relieved from amenability to the jurisdiction of this code by virtue of a separation from any later period of service.”

The United States Supreme Court has declared article 3(a) unconstitutional in so far as that provision would place under court-martial jurisdiction a civilian ex-serviceman with no remaining military status.

ART. 7. APPREHENSION

“(a) Apprehension is the taking of a person into custody.

“(b) Any person authorized under regulations governing the armed forces to apprehend persons subject to this code or to trial thereunder may do so upon reasonable belief that an offense has been committed and that the person apprehended committed it.

“(c) Commissioned officers, warrant officers, petty officers, and noncommissioned officers have authority to quell quarrels, frays, and disorders among persons subject to this code and to apprehend persons subject to this code who take part therein.”

In addition to those listed in 7.c., air police, military police, shore patrolmen, and others designated to perform guard or police duties may apprehend persons subject to the code.

Enlisted persons performing police duties should not apprehend an officer except on specific orders of a commissioned officer, unless such action is necessary to prevent disgrace to the service, the commission of a serious offense, or the escape of one who has committed a serious offense. In such cases, the apprehending individual immediately notifies the officer to whom he is responsible or an officer of the air police, military police, or the shore patrol.

An apprehension is effected by clearly notifying the offender that he is thereby taken into custody. The order may be oral or written.

There is a clear distinction between the authority to apprehend and the authority to arrest or confine (article 9). Any person empowered to apprehend an offender, however, is authorized to secure the custody of an alleged offender until proper authority may be notified, notwithstanding limitations on his power to arrest or confine.

ART. 8. APPREHENSION OF DESERTER

“Any civil officer having authority to apprehend offenders under the laws of the United States or of a State, Territory, Commonwealth, or possession, or the District of Columbia may summarily apprehend a deserter from the armed forces and deliver him into the custody of those forces.”

When a military service sends out a description of a deserter, with a request for his apprehension, the notice is sufficient authority for his apprehension by a civil officer.

ART. 9. IMPOSITION OF RESTRAINT

“(a) Arrest is the restraint of a person by an order, not imposed as a punishment for an offense, directing him to remain within certain specified limits. Confinement is the physical restraint of a person.

“(b) An enlisted member may be ordered into arrest or confinement by

any commissioned officer by an order, oral or written, delivered in person or through other persons subject to this code. A commanding officer may authorize warrant officers, petty officers, or noncommissioned officers to order enlisted members of his command or subject to his authority into arrest or confinement.

“(c) A commissioned officer, a warrant officer or a civilian subject to this code or to trial thereunder may be ordered into arrest or confinement only by a commanding officer to whose authority he is subject, by an order, oral or written, delivered in person or by another commissioned officer. The authority to order such persons into arrest or confinement may not be delegated.

“(d) No person may be ordered into arrest or confinement except for probable cause.

“(e) Nothing in this article limits the authority of persons authorized to apprehend offenders to secure the custody of an alleged offender until proper authority may be notified.”

ART. 10. RESTRAINT OF PERSONS CHARGED WITH OFFENSES

“Any person subject to this code charged with an offense under this code shall be ordered into arrest or confinement, as circumstances may require; but when charged only with an offense normally tried by a summary court-martial, he shall not ordinarily be placed in confinement. When any person subject to this code is placed in arrest or confinement prior to trial, immediate steps shall be taken to inform him of the specific wrong of which he is accused and to try him or to dismiss the charges and release him.”

This article, requiring “immediate steps” to try the accused, is strengthened by article 98

which makes punishable by court-martial any unnecessary delay in the disposition of a case. However, undue haste also is frowned upon. In time of peace no person may, against his objection, be brought to trial before a general court-martial within 5 days after he has been served with the charges, or before a special court-martial within 3 days after the service of charges (article 35).

To monitor pretrial confinement, the general court-martial convening authority for each shore confinement facility appoints one or more military magistrates. For Navy facilities the magistrate must be a judge advocate. For Marine correctional facilities the magistrate may be a judge advocate.

Every officer ordering a service member into pretrial confinement must provide the appropriate military magistrate with a report containing the hour, date, and place of confinement; the offense(s) allegedly committed; the general circumstances of each offense; the previous discipline record of the individual; any mitigating circumstances; and the reason pretrial confinement is deemed necessary.

Upon receipt of this report, the military magistrate will hold an informal hearing, with the service member present, to determine whether continued confinement is necessary. If continued confinement is found unjustified, the military magistrate will notify the commanding officer, who immediately must order the service member's release.

ART. 11. REPORTS AND RECEIVING OF PRISONERS

“(a) No provost marshall, commander of a guard, or master at arms may refuse to receive or keep any prisoner committed to his charge by a commissioned officer of the armed forces, when the committing officer furnishes a statement, signed by him, of the offense charged against the prisoner.

“(b) Every commander of a guard or master at arms to whose charge a prisoner is committed shall, within twenty-four hours after that commitment or as soon as he is relieved

from guard, report to the commanding officer the name of the prisoner, the offense charged against him, and the name of the person who ordered or authorized the commitment.”

An arrest is imposed by notifying the person to be arrested that he is under arrest and informing him of the limits of his arrest. The order of arrest may be oral or written. A person to be confined is placed under guard and taken to the place of confinement.

**ART. 12.
CONFINEMENT WITH ENEMY
PRISONERS PROHIBITED**

“No member of the armed forces may be placed in confinement in immediate association with enemy prisoners or other foreign nationals not members of the armed forces.”

Members of the Armed Forces may be confined in the same jails, prisons, or other confinement facilities, however, so long as they are separated from the other categories mentioned.

**ART. 13.
PUNISHMENT PROHIBITED
BEFORE TRIAL**

“Subject to article 57, no person, while being held for trial, may be subjected to punishment or penalty other than arrest or confinement upon the charges pending against him, nor shall the arrest or confinement imposed upon him be any more rigorous than the circumstances require to insure his presence, but he may be subjected to minor punishment during that period for infractions of discipline.”

The minor punishment permitted under article 13 includes that authorized for violations of the discipline of the place in which the person is confined. The article does not prevent a person from being required to do ordinary cleaning or policing, or from taking part in routine training and duties not involving the bearing of arms.

**ART. 14.
DELIVERY OF OFFENDERS
TO CIVIL AUTHORITIES**

“(a) Under such regulations as the Secretary concerned may prescribe, a member of the armed forces accused of an offense against civil authority may be delivered, upon request, to the civil authority for trial.

“(b) When delivery under this article is made to any civil authority of a person undergoing sentence of a court-martial, the delivery, if followed by conviction in a civil tribunal, interrupts the execution of the sentence of the court-martial, and the offender after having answered to the civil authorities for his offense shall, upon the request of competent military authority, be returned to military custody for the completion of his sentence.”

**ART. 15.
COMMANDING OFFICER'S
NONJUDICIAL PUNISHMENT**

“(a) Under such regulations as the President may prescribe, and under such additional regulations as may be prescribed by the Secretary concerned, limitations may be placed on the powers granted by this article with respect to the kind and amount of punishment authorized, the categories of commanding officers and warrant officers exercising command authorized to exercise those powers, the applicability of this article to an accused who demands trial by court-martial, and the kinds of courts-martial to which the case may be referred upon such a demand. However, except in the case of a member attached to or embarked in a vessel, punishment may not be imposed upon any member of the armed forces under this article if the member has, before the imposition of such punishment, demanded trial by

court-martial in lieu of such punishment. Under similar regulations, rules may be prescribed with respect to the suspension of punishment authorized hereunder. If authorized by regulations of the Secretary concerned, a commanding officer exercising general court-martial jurisdiction of an officer of general or flag rank in command may delegate his powers under this article to a principal assistant.

“(b) Subject to subsection (a) of this section, any commanding officer may, in addition to or in lieu of admonition or reprimand, impose one or more of the following disciplinary punishments for minor offenses without the intervention of a court-martial—

“(1) upon officers of his command—

“(A) restriction to certain specified limits, with or without suspension from duty, for not more than 30 consecutive days;

“(B) if imposed by an officer exercising general court-martial jurisdiction or an officer of general or flag rank in command—

“(i) arrest in quarters for not more than 30 consecutive days;

“(ii) forfeiture of not more than one-half of one month's pay per month for two months;

“(iii) restriction to certain specified limits, with or without suspension from duty, for not more than 60 consecutive days;

“(iv) detention of not more than one-half of one month's pay per month for three months;

“(2) upon other personnel of his command—

“(A) if imposed upon a person attached to or embarked in a vessel, confinement on bread and water or diminished rations for not more than three consecutive days;

“(B) correctional custody for not more than seven consecutive days;

“(C) forfeiture of, not more than seven days' pay;

“(D) reduction to the next inferior pay grade, if the grade from which demoted is within the promotion authority of the officer imposing the reduction or any officer subordinate to the one who imposes the reduction;

“(E) extra duties, including fatigue or other duties, for not more than 14 consecutive days;

“(F) restriction to certain specified limits, with or without suspension from duty, for not more than 14 consecutive days;

“(G) detention of not more than 14 days' pay;

“(H) if imposed by an officer of the grade of major or lieutenant commander, or above—

“(i) the punishment authorized under subsection (b) (2) (A);

“(ii) correctional custody for not more than 30 consecutive days;

“(iii) forfeiture of not more than one-half of one month's pay per month for two months;

“(iv) reduction to the lowest or any intermediate pay grade, if the grade from which demoted is within the promotion authority of the officer imposing the reduction or any officer subordinate to the one who imposes the reduction, but an enlisted member in a pay grade above E-4 may not be reduced more than two pay grades;

“(v) extra duties, including fatigue or other duties, for not more than 45 consecutive days;

“(vi) restriction to certain specified limits, with or without suspension from duty, for not more than 60 consecutive days;

“(vii) detention of not more than one-half of one month’s pay per month for three months.

“Detention of pay shall be for a stated period of not more than one year but if the offender’s term of service expires earlier, the detention shall terminate upon that expiration. No two or more of the punishments of arrest in quarters, confinement on bread and water or diminished rations, correctional custody, extra duties, and restriction may be combined to run consecutively in the maximum amount impossible for each. Whenever any of those punishments are combined to run consecutively, there must be an apportionment. In addition, forfeiture of pay may not be combined with detention of pay without an apportionment. For the purposes of this subsection, ‘correctional custody’ is the physical restraint of a person during duty or nonduty hours and may include extra duties, fatigue duties, or hard

labor. If practicable, correctional custody will not be served in immediate association with persons awaiting trial or held in confinement pursuant to trial by court-martial.

“(c) An officer in charge may impose upon enlisted members assigned to the unit of which he is in charge such of the punishments authorized under subsection (b) (2) (A)-(G) as the Secretary concerned may specifically prescribe by regulation.

“(d) The officer who imposes the punishment authorized in subsection (b), or his successor in command, may, at any time, suspend probationally any part or amount of the unexecuted punishment imposed and may suspend probationally a reduction in grade or a forfeiture imposed under subsection (b), whether or not executed. In addition, he may, at any time, remit or mitigate any part or amount of the unexecuted punishment imposed and may set aside in whole or in part the punishment, whether executed or unexecuted, and restore all rights, privileges, and property affected. He may also mitigate reduction in grade to forfeiture or detention of pay. When mitigating—

“(1) arrest in quarters to restriction;

“(2) confinement on bread and water or diminished rations to correctional custody;

“(3) correctional custody or confinement on bread and water or diminished rations to extra duties or restriction, or both; or

“(4) extra duties to restriction; “the mitigated punishment shall not be for a greater period than the punishment mitigated. When mitigating forfeiture of pay to detention of pay, the amount of the detection shall not be greater than the amount of the

forfeiture. When mitigating reduction in grade to forfeiture or detention of pay, the amount of the forfeiture or detention shall not be greater than the amount that could have been imposed initially under this article by the officer who imposed the punishment mitigated.

“(e) A person punished under this article who considers his punishment unjust or disproportionate to the offense may, through the proper channel, appeal to the next superior authority. The appeal shall be promptly forwarded and decided, but the person punished may in the meantime be required to undergo the punishment adjudged only if attached to or embarked in a vessel. If the accused is not attached to or embarked in a vessel such punishment will be stayed pending completion of his appeal. The superior authority may exercise the same powers with respect to the punishment imposed as may be exercised under subsection (d) by the officer who imposed the punishment. Before acting on an appeal from the punishment of—

“(1) arrest in quarters for more than seven days;

“(2) correctional custody for more than seven days;

“(3) forfeiture of more than seven days' pay;

“(4) reduction of one or more pay grades from the fourth or a higher pay grade;

“(5) extra duties for more than 14 days;

“(6) restriction for more than 14 days; or

“(7) detention of more than 14 days' pay; “the authority who is to act on the appeal shall refer the

case to a judge advocate of the Army, Navy, Air Force, or Marine Corps, or a law specialist or lawyer of the Marine Corps, Coast Guard, or Treasury Department for consideration and advice, and may so refer the case upon appeal from any punishment imposed under subsection(b).^{1/}

“(f) The imposition and enforcement of disciplinary punishment under this article for any act or omission is not a bar to trial by court-martial for a serious crime or offense growing out of the same act or omission, and not properly punishable under this article; but the fact that disciplinary punishment has been enforced may be shown by the accused upon trial, and when so shown, shall be considered in determining the measure of punishment to be adjudged in the event of a finding of guilty.

“(g) The Secretary concerned may, by regulation, prescribe the form of records to be kept of proceedings under this article and may also prescribe that certain categories of those proceedings shall be in writing.”

Nonjudicial punishment is authorized for minor offenses that constitute a violation of one of the punitive articles of the Code. Whether an offense may be considered minor depends upon factors such as its nature and the circumstances surrounding its commission. Generally, the term includes misconduct not involving a greater degree of criminality than involved in the average offense tried by summary court-martial.

Minor offenses ordinarily do not include those involving moral turpitude, such as larceny, forgery, and maiming; escape from confinement; willful disobedience; prolonged unauthorized absence; or any offense punishable by dishonorable discharge or confinement for more than a year.

^{1/} “Treasury Department,” for purposes of this article, is now “Department of Transportation.”

**ART. 25.
WHO MAY SERVE ON
COURTS-MARTIAL**

“(a) Any commissioned officer on active duty is eligible to serve on all courts-martial for the trial of any person who may lawfully be brought before such courts for trial.

“(b) Any warrant officer on active duty is eligible to serve on general and special courts-martial for the trial of any person, other than a commissioned officer, who may lawfully be brought before such courts for trial.

“(c) (1) Any enlisted member of an armed force on active duty who is not a member of the same unit as the accused is eligible to serve on general and special courts-martial for the trial of any enlisted person of an armed force who may lawfully be brought before such courts for trial, but he shall serve as a member of court only if, before the conclusion of a session called by the military judge under article 39(a) prior to trial or, in the absence of such a session, before the court is assembled for the trial of the accused, the accused personally has requested in writing that enlisted persons serve on it. After such a request, the accused may not be tried by a general or special court-martial the membership of which does not include enlisted persons in a number comprising at least one-third of the total membership of the court, unless eligible enlisted persons cannot be obtained on account of physical conditions or military exigencies. If such members cannot be obtained, the court may be assembled and the trial held without them, but the convening authority shall make a detailed written statement, to be appended to the record, stating why they could not be obtained.

“(2) In this article, the word “unit” means **any regularly** organized body as defined by the Secretary concerned, but in no case may it be a

body larger than a company, squadron, ship’s crew, or body corresponding to one of them.

“(d) (1) When it can be avoided, no member of an armed force may be tried by a court-martial any member of which is junior to him in rank or grade.

“(2) When convening a court-martial, the convening authority shall detail as members thereof such members of the armed forces as, in his opinion, are best qualified for the duty by reason of age, education, training, experience, length of service, and judicial temperament. No member of an armed force is eligible to serve as a member of a general or special court-martial when he is the accuser or a witness for the prosecution or has acted as investigating officer or as counsel in the same case.”

A unit of the Navy or Coast Guard in the sense of section 25(c) is a ship, company, detached command, or other organization for which a separate unit personnel diary is prepared.

Whenever practicable, the senior member of a general or special court-martial should be an officer whose rank is not below that of lieutenant of the Navy or Coast Guard or captain of the Army, Air Force, or Marine Corps. Unless it cannot be avoided, all members are senior to the accused in grade or in precedence.

An accuser is a person who (1) signs and swears to charges, (2) directs that charges nominally be signed and sworn by another, or (3) has other than an official interest in the prosecution of the accused.

**ART. 27.
DETAIL OF TRIAL COUNSEL
AND DEFENSE COUNSEL**

“(a) For each general and special court-martial the authority convening the court shall detail trial counsel and defense counsel, and such assistants as he considers appropriate. No person who has acted as investigating officer,

military judge, or court member in any case may act later as trial counsel, assistant trial counsel, or, unless expressly requested by the accused, as defense counsel or assistant defense counsel in the same case. No person who has acted for the prosecution may act later in the same case for the defense, nor may any person who has acted for the defense act later in the same case for the prosecution.

“(b) Trial counsel or defense counsel detailed for a general court-martial—

“(1) must be a judge advocate of the Army, Navy, Air Force, or Marine Corps, or a law specialist of the Coast Guard, who is a graduate of an accredited law school or is a member of the bar of a Federal court or of the highest court of a State; or must be a member of the bar of a Federal court or of the highest court of a State; and

“(2) must be certified as competent to perform such duties by the Judge Advocate General of the armed force of which he is a member.

“(c) In case of a special court-martial—

“(1) the accused shall be afforded the opportunity to be represented at the trial by counsel having the qualifications prescribed under article 27(b) unless counsel having such qualifications cannot be obtained on account of physical conditions or military exigencies. If counsel having such qualifications cannot be obtained, the court may be convened and the trial held but the convening authority shall make a detailed written statement, to be appended to the record, stating why counsel with such qualifications could not be obtained;

“(2) if the trial counsel is qualified to act as counsel before a general court-martial, the defense counsel detailed by the convening authority must be a person similarly qualified; and

“(3) if the trial counsel is a judge advocate, or a law specialist, or a member of the bar of a Federal court or the highest court in the State, the defense counsel detailed by the convening authority must be one of the foregoing.”

The requirements of this article ensure that the accused is adequately represented. His right to counsel of his own choosing is provided for by article 38(b). The gist of section (2) is that changing sides is forbidden—if a person has acted for the defense he may not subsequently act for the prosecution, or vice versa.

The Code provides, however, that the accused shall be afforded the opportunity to be represented at the trial by counsel having the qualifications prescribed under article 27(b).

ART. 31. COMPULSORY SELF-INCRIMINATION PROHIBITED

“(a) No person subject to this code may compel any person to incriminate himself or to answer any question the answer to which may tend to incriminate him.

“(b) No person subject to this code may interrogate, or request any statement from, an accused or a person suspected of an offense without first informing him of the nature of the accusation and advising him that he does not have to make any statement regarding the offense of which he is accused or suspected and that any statement made by him may be used as evidence against him in a trial by court-martial.

“(c) No person subject to this code may compel any person to make a statement or produce evidence before

any military tribunal if the statement or evidence is not material to the issue and may tend to degrade him.

“(d) No statement obtained from any person in violation of this article, or through the use of coercion, unlawful influence, or unlawful inducement may be received in evidence against him in a trial by court-martial.”

Article 31, in accordance with the fifth amendment to the Constitution of the United States, provides that in a criminal case no person may be compelled to be a witness against himself. The article applies to official investigations as well as to courts-martial.

Paragraph (a) applies to any self-incrimination whether or not material to the issue, and it may be invoked by a witness, an accused, or a suspect. However, if the person invoking 31(a) could for any reason successfully object to being tried because of revelations developed by his answer (for example, the statute of limitations for an admitted criminal act may have run out), he may be compelled to answer.

Paragraph (b) requires that any person charged with or suspected of an offense must be informed, before he is interrogated concerning the offense—

1. Of the nature of the offense.
2. That he does not have to make any statement regarding the offense.
3. That anything he says may be used against him in a trial.

The provisions of 31(b) also apply before, for example, a suspect is asked to identify his property, provide examples of his handwriting, or to speak for the purpose of voice identification. Paragraphs (b) and (d) of the article have the effect of requiring the exclusion from evidence of any statement, even if voluntary, or of any compulsory act, if the prior warning made mandatory by 31(b) is not given. Since the wording of article 31 requires the warning only when a person who is himself subject to the code is conducting an interrogation or requesting a statement,

provisions of the article do not exclude from evidence in a subsequent trial by court-martial any voluntary statement given to civil authorities, or to any person not officially inquiring into the person's conduct.

The privilege against compulsory self-degradation (31(c)) applies only to matters not material to the issue. It is not a violation of the article, for instance, to order an accused to expose his body for examination by a court or a physician who will later testify in court as to the results of his examination. Neither is the prohibition violated by compelling a person to try on a pair of shoes, to shave or grow a beard, or to have his fingerprints taken. An accused may not, however, be forced to perform acts that require the use of mental or physical faculties. This means, for example, that the results of tests of blood or urine taken from an accused for other than clinical purposes, against his will, are not admissible in evidence.

ART. 37. UNLAWFULLY INFLUENCING ACTION OF COURT

“(a) No authority convening a general, special, or summary court-martial, nor any other commanding officer, may censure, reprimand, or admonish the court or any member, military judge, or counsel thereof, with respect to the findings or sentence adjudged by the court, or with respect to any other exercise of its or his functions in the conduct of the proceedings. No person subject to this code may attempt to coerce or, by any unauthorized means, influence the action of a court-martial or any other military tribunal or any member thereof, in reaching the findings or sentence in any case, or the action of any convening, approving, or reviewing authority with respect to his judicial acts. The foregoing provision of the subsection shall not apply with respect to (1) general instructional or informational courses in military justice if such courses are designed solely for the purpose of instructing members of a command in

the substantive and procedural aspects of courts-martial or (2) to statements and instructions given in open court by the military judge, president of a special court-martial, or counsel.

“(b) In the preparation of an effectiveness, fitness, or efficiency report, or any other report or document used in whole or in part for the purpose of determining whether a member of the armed forces is qualified to be advanced, in grade, or in determining the assignment or transfer of a member of the armed forces or in determining whether a member of the armed forces should be retained on active duty, no person subject to this chapter may, in preparing any such report (1) consider or evaluate the performance of duty of any such member as a member of a court-martial, or (2) give a less favorable rating or evaluation of any member of the armed forces because of the zeal with which such member, as counsel, represented any accused before a court-martial.”

Article 37 is designed to ensure that every court, its members and officers, shall be completely free to fulfill its functions without fear of reprisal.

ART. 38. DUTIES OF TRIAL COUNSEL AND DEFENSE COUNSEL

“(a) The trial counsel of a general or special court-martial shall prosecute in the name of the United States, and shall, under the direction of the court, prepare the record of the proceedings.

“(b) The accused has the right to be represented in his defense before a general or special court-martial by civilian counsel, if provided by him, or by military counsel, of his own selection if reasonably available, or by the defense counsel detailed under article 27. Should the accused have counsel of his own selection, the defense counsel, and

assistance defense counsel, if any, who were detailed, shall, if the accused so desires, act as his associate counsel; otherwise they shall be excused by the military judge or by the president of a court-martial without a military judge.

“(c) In every court-martial proceeding, the defense counsel may, in the event of conviction, forward for attachment to the record of proceedings a brief of such matters as he feels should be considered in behalf of the accused on review, including any objection to the contents of the record which he considers appropriate.

“(d) An assistant trial counsel of a general court-martial may, under the direction of the trial counsel or when he is qualified to be a trial counsel as required by article 27, perform any duty imposed by law, regulation, or the custom of the service upon the trial counsel of the court. An assistant trial counsel of a special court-martial may perform any duty of the trial counsel.

“(e) An assistant defense counsel of a general or special court-martial may, under the direction of the defense counsel or when he is qualified to be the defense counsel as required by article 27, perform any duty imposed by law, regulation, or the custom of the service upon counsel for the accused.”

Expenses for civilian counsel are borne by the accused. A request for military counsel of the accused's selection usually is forwarded by the regularly appointed defense counsel, through trial counsel, to the convening authority.

In the event of conviction, defense counsel, immediately after trial, advises the accused of his right (if any) to be represented by counsel before the Court of Military Review and the Court of Military Appeals, each of which has the legal power to reverse the decision of the court-martial that convicted him. In an appropriate case, defense counsel assists the appellant (one who appeals a judicial decision) to secure such appellate representation. The accused has 10 days from the date he is notified

of the convening or supervisory authority's action on his case to request that he be represented by counsel before the Court of Military Review.

The primary duty of trial counsel is to prosecute, but any act (such as conscious suppression of evidence favorable to the defense) inconsistent with a genuine desire to have the whole truth revealed is prohibited. It is not his duty, however, to assist or advise the defense.

ART. 55. CRUEL AND UNUSUAL PUNISHMENTS PROHIBITED

"Punishment by flogging, or by branding, marking, or tattooing on the body, or any other cruel or unusual punishment, may not be adjudged by any court-martial or inflicted upon any person subject to this code. The use of irons, single or double, except for the purpose of safe custody, is prohibited."

Courts-martial may not impose any punishment not sanctioned by the custom of the service, such as carrying a loaded knapsack, shaving the head, placarding, pillorying, placing in stocks, or tying up by the thumbs. Loss of good-conduct time will not be adjudged as punishment by a court-martial.

ART. 77. PRINCIPALS

"Any person punishable under this code who—

"(1) commits an offense punishable by this code, or aids, abets, counsels, commands, or procures its commission; or

"(2) causes an act to be done which if directly performed by him would be punishable by this code;

is a principal."

Mere presence at the scene of a crime does not make one a principal. There must be an intent to aid or encourage the persons who commit the crime and the aider or abettor must share the criminal intent or purpose of the perpetrator. If there is a concert of purpose to commit a given criminal act, and the act is done by one of the parties, all probable results that could be expected from the act are chargeable to all parties concerned.

If a witness to a crime had a duty to interfere and his noninterference was designed by him to operate and did operate as an encouragement to or protection of the perpetrator, he is a principal.

One who counsels, commands, or procures another into committing an offense is a principal even though he was not present when the offense was committed.

ART. 78. ACCESSORY AFTER THE FACT

"Any person subject to this code who, knowing that an offense punishable by this code has been committed, receives, comforts, or assists the offender in order to hinder or prevent his apprehension, trial, or punishment, shall be punished as a court-martial may direct."

ART. 79. CONVICTION OF LESSER INCLUDED OFFENSE

"An accused may be found guilty of an offense necessarily included in the offense charged or of an attempt to commit either the offense charged or of an offense necessarily included therein."

A military tribunal may only try a person who has been charged with violating a particular article or articles of UCMJ. Quite simply, if a man committed what is considered a crime but the code did not include that crime in one of its punitive articles, no court-martial could try him. Articles 77, 78, 80, 81, and 82 of the code thus encompass persons who, although they may not

have participated actively in, or successfully accomplished, the commission of an offense, can be convicted of having had "their finger in the pie."

Article 79 goes a step further by authorizing the finding of guilty of a lesser included offense when a finding of guilty cannot be sustained for the offense charged. For this reason, there are three permissible findings as to a charge: guilty; not guilty; not guilty, but guilty of a violation of article

The key words in article 79 are "offense necessarily included in the offense charged." For example, a violation of article 85, "Desertion with intent to remain away permanently," invariably is also an uncharged violation of the lesser charge of article 86, "Absence without proper authority." Proving that an accused deserter had no intention of ever returning might be impossible. But the facts are clear as to when he absented himself and when he (was) returned to military jurisdiction. Thus, many "deserters" are, for lack of proof of intent, found "Not guilty, but guilty of a violation of article 86."

Other examples of what are generally held to be "lesser included offenses" contained in a principal offense include the following:

Art.	Principal offense	Art.	Lesser included offense
94	Mutiny	92	Failure to obey lawful order
94	Sedition	116	Breach of the peace
95	Breach of arrest	134	Breach of restriction
118	Murder	119	Manslaughter
122	Robbery	121	Larceny
124	Maiming	128	Assault with a dangerous weapon

ART. 80. ATTEMPTS

"(a) An act, done with specific intent to commit an offense under this code, amounting to more than mere preparation and tending, even though failing, to effect its commission, is an attempt to commit that offense.

"(b) Any person subject to this code who attempts to commit any offense punishable by this code shall be punished as a court-martial may direct; unless otherwise specifically prescribed.

"(c) Any person subject to this code may be convicted of an attempt to commit an offense although it appears on the trial that the offense was consummated."

To constitute an attempt there must be a specific intent to commit the particular offense accompanied by an overt act which directly tends to accomplish the unlawful purpose. The overt act required goes beyond preparatory steps and is a direct movement toward commission of the offense.

It is not an attempt when every act intended by the accused could be completed without committing an offense. But an accused may be guilty of an attempt even though the crime turns out to be impossible of commission because of an outside intervening circumstance. A pickpocket who puts his hand in the pocket of another with intent to steal his billfold is guilty of an attempt to commit larceny, even though the pocket is empty.

ART. 81. CONSPIRACY

"Any person subject to this code who conspires with any other person to commit an offense under this code shall, if one or more of the conspirators does an act to effect the object of the conspiracy, be punished as a court-martial may direct."

The agreement in a conspiracy need not be in any particular form not manifested in any formal words. It is sufficient if the minds of the parties arrive at a common understanding to accomplish the object of the conspiracy.

The overt act of a conspiracy must be an independent act by one or more of the conspirators following the agreement and done to carry into effect the object of that agreement. The overt act need not be in itself criminal, but it must be a manifestation that the conspiracy is being executed.

A conspiracy to commit an offense is a different and distinct offense from the offense which is the object of the conspiracy, and both the conspiracy and the consummated offense which was its object may be charged and tried.

A party to a conspiracy may, before the performance of an overt act, withdraw from the conspiracy, but there must be some affirmative act of withdrawal. Such withdrawal neither creates a new conspiracy nor changes the status of the remaining members.

ART. 82. SOLICITATION

“(a) Any person subject to this code who solicits or advises another or others to desert in violation of article 85 or mutiny in violation of article 94 shall, if the offense solicited or advised is attempted or committed, be punished with the punishment provided for the commission of the offense, but, if the offense solicited or advised is not committed or attempted, he shall be punished as a court-martial may direct.

“(b) Any person subject to this code who solicits or advises another or others to commit an act of misbehavior before the enemy in violation of article 99 or sedition in violation of article 94 shall, if the offense solicited or advised is committed, be punished with the punishment provided for the commission of the offense, but, if the offense solicited or advised is not committed, he shall be punished as a court-martial may direct.”

Solicitation may be accomplished by other means than by word of mouth or by writing. Any act or conduct that reasonably may be construed as a serious request or advice to commit one of the offenses named in the article may constitute solicitation. The accused may act through other persons in committing this offense.

Solicitation to commit offenses other than violations of the articles enumerated in this article may be charged as violations of article 134.

ART. 83. FRAUDULENT ENLISTMENT, APPOINTMENT, OR SEPARATION

“Any person who—

“(1) Procures his own enlistment or appointment in the armed forces by knowingly false representation or deliberate concealment as to his qualifications for that enlistment or appointment and receives pay or allowances thereunder; or

“(2) procures his own separation from the armed forces by means of knowingly false representation or deliberate concealment as to his eligibility for that separation; shall be punished as a court-martial may direct.”

An essential element of the offense of fraudulent enlistment or appointment is that the accused shall have received pay or allowances thereunder. Acceptance of food, clothing, shelter, or transportation from the Government constitutes receipt of allowances.

After apprehension, an accused who is charged with having fraudulently obtained his separation from a branch of the Armed Forces is subject to the Code while in the custody of the Armed Forces and awaiting trial for the fraudulent separation (article 3(b)).

ART. 84. UNLAWFUL ENLISTMENT, APPOINTMENT, OR SEPARATION

“Any person subject to this code who effects an enlistment or

appointment in or a separation from the armed forces of any person who is known to him to be ineligible for that enlistment, appointment, or separation because it is prohibited by law, regulation, or order shall be punished as a court-martial may direct."

ART. 85. DESSERTION

"(a) Any member of the armed forces who—

"(1) without authority goes or remains absent from his unit, organization, or place of duty with intent to remain away therefrom permanently;

"(2) quits his unit, organization, or place of duty with intent to avoid hazardous duty or to shirk important service; or

"(3) without being regularly separated from one of the armed forces enlists or accepts an appointment in the same or another one of the armed forces without fully disclosing the fact that he has not been regularly separated, or enters any foreign armed service except when authorized by the United States;

"is guilty of desertion.

"(b) Any commissioned officer of the armed forces who, after tender of his resignation and before notice of its acceptance, quits his post or proper duties without leave and with intent to remain away therefrom permanently is guilty of desertion.

"(c) Any person found guilty of desertion or attempt to desert shall be punished, if the offense is committed in time of war, by death or such other punishment as a court-martial may direct, but if the desertion or attempt to desert occurs at any other time, by such punishment, other than death, as a court-martial may direct."

Both absence without authority and the intent to remain away permanently are essential elements of a charge of desertion.

"Hazardous duty" or "important service" may include such service as duty in a combat or other dangerous area, embarkation for foreign duty or for sea duty, movement to a port of embarkation, etc. Drill, target practice, maneuvers, and practice marches are not ordinarily regarded as included.

The fact that a person intends to report or actually reports at another station does not prevent a conviction for desertion, as that fact in connection with other circumstances may tend to establish his intentions not to return to his proper place of duty. However, a person absent without leave from his place of service and without funds may report to another station for transportation back to his original place of duty, which circumstance would tend to negate the existence of an intent to desert. No general rule can be laid down as the effect to be given to an intention to report or an actual reporting at another station. Return to military control may be effected by return to any of the Armed Forces, whether or not that of which the accused is a member.

A man who is absent without authority from his command is placed in the status of an absentee and may become liable to severe penalties upon his return to naval jurisdiction unless a satisfactory explanation can be furnished. When a man has been in an absentee status for more than 30 days, notification is forwarded to his next of kin, to the chief of police in his home town, and to various other law enforcement agencies, as well as to certain activities of the other Armed Forces. The foregoing authorities are requested to assist in the apprehension of the absentee and, except in the cases of Federal officers, are paid any necessary expenses up to twenty-five dollars incurred in effecting the man's return to military or naval control. This amount is subsequently checked against the returned absentee's pay.

The status of an absentee changes to that of a deserter after 30 days of absence, or sooner if the intent to desert is manifest. For example, if an enlisted man were to go ashore without permission, taking all his personal belongings with him and announcing to his shipmates that

he was leaving the service for good, he should be immediately declared a deserter.

After a man is declared a deserter, the Federal Bureau of Investigation enters into the search for the man. The expenses involved in returning him are chargeable to the deserter.

When a person is convicted of desertion in time of war and such conviction results in a dishonorable discharge, the law provides that the person never again hold any office of trust or profit in the United States Government.

ART. 86.
ABSENCE WITHOUT LEAVE

“Any member of the armed forces who, without authority—

“(1) fails to go to his appointed place of duty at the time prescribed;

“(2) goes from that place; or

“(3) absents himself or remains absent from his unit, organization, or place of duty at which he is required to be at the time prescribed;

shall be punished as a court-martial may direct.”

This article is designed to cover every case not elsewhere provided for in which any member of the Armed Forces is, through his own fault, not at the place where he is required to be at a prescribed time. Specific intent is not an element of this offense, that is, the accused need not form the express intention of remaining away. The intent is expressed by the mere fact of his absence.

A member of the Armed Forces turned over to the civil authorities upon request (article 14) is not absent without leave while held by them under such delivery. When a member of the Armed Forces, being absent with leave, or absent without leave, is held, tried, and acquitted by civil authorities, his status as absent with leave or without leave is not thereby changed, however long he may be held. If a member of the Armed Forces is convicted by the civil authorities, the fact that he was arrested, held, and tried does not excuse any unauthorized absence.

ART. 87.
MISSING MOVEMENT

“Any person subject to this code who through neglect or design misses the movement of a ship, aircraft, or unit with which he is required in the course of duty to move shall be punished as a court-martial may direct.”

The word “movement” as used here does not include minor changes in location of ships, aircraft, or units, as when a ship is shifted from one berth to another.

To be guilty of article 87, the accused must have known of the prospective movement that he missed. His knowledge of the approximate date is sufficient for conviction—he need not have been aware of the exact hour or date.

ART. 88.
CONTEMPT TOWARD OFFICIALS

“Any commissioned officer who uses contemptuous words against the President, the Vice President, Congress, the Secretary of Defense, the Secretary of a military department, the Secretary of the Treasury, or the Governor or legislature of any State, Territory, Commonwealth, or possession in which he is on duty or present shall be punished as a court-martial may direct.”

“Congress,” as used here, does not include a member as an individual; “legislature” does not include its members individually; nor does “governor” include a “lieutenant governor.”

Adverse criticism of one of the officials or groups named in the article, in the course of a political discussion, even though emphatically expressed, if not personally contemptuous, may not be charged as a violation of this article. Similarly, expressions of opinion made in a purely private conversation are not ordinarily a basis for a court-martial charge.

It is immaterial whether contemptuous words are used against an official in his official or private capacity. Truth or falsity of the statements may be immaterial; the gist of the

offense is the contemptuous character of the language and the malice with which it is used.

**ART. 89.
DISRESPECT TOWARD SUPERIOR
COMMISSIONED OFFICER**

"Any person subject to this code who behaves with disrespect toward his superior commissioned officer shall be punished as a court-martial may direct."

A "superior commissioned officer" may be superior in either grade or command, and the term includes an officer of another service if he has been placed in the chain of command.

One officer may be inferior in grade to another, yet be the superior because of his command position. A line officer commanding, for example, may be junior in grade to a staff officer in the organization; because he is the commanding officer, however, the line officer is the "superior commissioned officer."

Disrespectful behavior can take many forms, the most obvious perhaps involving contemptuous language. Disrespectful acts may include failure to salute, disdain, indifference, insolence, or undue familiarity or other rudeness.

**ART. 90.
ASSAULTING OR
WILLFULLY DISOBEYING
COMMISSIONED OFFICER**

"Any person subject to this code who—

"(1) strikes his superior commissioned officer or draws or lifts up any weapon or offers any violence against him while he is in the execution of his office; or

"(2) willfully disobeys a lawful command of his superior commissioned officer;

"shall be punished, if the offense is committed in time of war, by death or such other punishment as a court-martial may direct, and if the offense is

committed at any other time, by such punishment, other than death, as a court-martial may direct."

The phrase "his superior commissioned officer" has the same meaning here as it does in article 89. That an accused did not know that a commissioned officer was his superior commissioned officer is a defense.

An officer is in the execution of his office when engaged in any act or service required or authorized to be done by him by statute, regulation, the order of a superior, or military usage. In general, any striking or use of violence against any superior by a person subject to military law, over whom it is the duty of that superior officer to maintain discipline at the time, would be striking or using violence against him in the execution of his office.

A discharged prisoner or other civilian subject to military law and under the command of an officer is subject to the provisions of this article.

Willful disobedience covered by this article is such as shows an intentional defiance of authority. Neglect to comply with an order through heedlessness, carelessness, or forgetfulness is punishable under article 92.

A person cannot be convicted under this article if the order was illegal; but an order requiring the performance of a military duty or act is presumed to be lawful and is disobeyed at the peril of the subordinate. Acts involved in the disobedience of an illegal order might under some circumstances be charged as insubordination under article 134.

**ART. 91.
INSUBORDINATE CONDUCT
TOWARD WARRANT OFFICER,
NONCOMMISSIONED OFFICER,
OR PETTY OFFICER**

"Any warrant officer or enlisted person who—

"(1) strikes or assaults a warrant officer, noncommissioned officer, or petty officer, while that officer is in the execution of his office;

"(2) willfully disobeys the lawful order of a warrant officer,

noncommissioned officer, or petty officer; or

“(3) treats with contempt or is disrespectful in language or deportment toward a warrant officer, noncommissioned officer, or petty officer while that officer is in the execution of his office; shall be punished as a court-martial may direct.”

This article has the same general objects with respect to warrant officers, noncommissioned officers, and petty officers as articles 89 and 90 have with respect to commissioned officers; namely, to insure obedience to their lawful orders, and to protect them from violence, insult, or disrespect.

ART. 92. FAILURE TO OBEY ORDER OR REGULATION

“Any person subject to this code who—

“(1) violates or fails to obey any lawful general order or regulation;

“(2) having knowledge of any other lawful order issued by a member of the armed forces, which it is his duty to obey, fails to obey the order; or

“(3) is derelict in the performance of his duties;

“shall be punished as a court-martial may direct.”

A general order or regulation is lawful if it is not contrary to or forbidden by the Constitution, the provisions of an act of Congress, or the lawful order of a superior. A general order or regulation is one which is issued by the President or by the Secretary of Defense, the Secretary of Transportation, or the secretary of a military department, and which applies generally to an armed force; or one which is promulgated by an officer having general

court-martial jurisdiction, a general or flag officer in command, or by a commander superior to one of these.

Disobedience of “any other lawful order” requires that the person must have had a duty to obey the order and must have had knowledge of the order. An accused may be charged with disobedience of the lawful order of one not a superior, provided the accused had a duty to obey such order. Examples are lawful orders of a sentinel or of members of the Armed Forces Police.

A person is derelict in the performance of duties when he willfully or negligently fails to perform them, or when he performs them in a culpably inefficient manner. To be culpably inefficient an accused must have had the ability and opportunity to perform his duties efficiently, but performed them inefficiently nevertheless.

ART. 93. CRUELTY AND MALTREATMENT

“Any person subject to this code who is guilty of cruelty toward, or oppression or maltreatment of, any person subject to his orders shall be punished as a court-martial may direct.”

The cruelty, oppression, or maltreatment must be real, although not necessarily physical. To assault and to subject to improper punishment are examples of this offense. The imposition of necessary or proper duties and the exaction of their performance will not constitute this offense even though such duties are arduous or hazardous or both.

ART. 94. MUTINY OR SEDITION

“(a) Any person subject to this code who—

“(1) with intent to usurp or override lawful military authority, refuses, in concert with any other person, to obey orders or otherwise

do his duty or creates any violence or disturbance is guilty of mutiny;

“(2) with intent to cause the overthrow or destruction of lawful civil authority, creates, in concert with any other person, revolt, violence, or other disturbance against that authority is guilty of sedition;

“(3) fails to do his utmost to prevent and suppress mutiny or sedition being committed in his presence, or fails to take all reasonable means to inform his superior commissioned officer or commanding officer of a mutiny or sedition which he knows or has reason to believe is taking place, is guilty of a failure to suppress or report a mutiny or sedition.

“(b) A person who is found guilty of attempted mutiny, mutiny, sedition, or failure to suppress or report a mutiny or sedition, shall be punished by death or such other punishment as a court-martial may direct.”

There are two distinct types of mutiny, both requiring an intent to usurp or override military authority. One consists of the creation of violence or disturbance with that intent, and may be committed by one person acting alone or by more than one. The other, consisting of a refusal in concert with any other person to obey orders or otherwise do one's duty, imports collective insubordination, and necessarily includes some combination of two or more persons in resisting lawful military authority.

The act of insubordination need not be active or violent. It may consist simply of a consistent and concerted refusal or omission to obey orders, or to do duty, with an intent to usurp or override lawful military authority. The intent may be stated in words or inferred from acts or surrounding circumstances.

Sedition differs from mutiny in that it implies a resistance to civil power, as distinguished from military power.

Persons subject to the code must take such measures to prevent or suppress acts of sedition or mutiny being committed in their presence as may properly be called for by the circumstances, having in mind the grade and responsibilities or the employment of the individual concerned. However, the use of more force than is reasonably necessary is an offense.

ART. 95. RESISTANCE, BREACH OF ARREST, AND ESCAPE

“Any person subject to this code who resists apprehension or breaks arrest or who escapes from custody or confinement shall be punished as a court-martial may direct.”

Resisting apprehension consists of an active resistance to a legal restraint attempted to be imposed by the person apprehending. Active resistance may be accomplished by flight or by assaulting the apprehending person. Mere words of remonstrance, argument, or abuse, and attempts to escape from custody after the apprehension is complete, will not constitute the offense of resisting apprehension though they may constitute other offenses.

The distinction between arrest and custody or confinement lies in the difference between the kinds of restraint imposed. Arrest is moral restraint imposed by orders fixing the limits of arrest. Custody and confinement include some physical restraint.

Breach of arrest is committed when the person under legal arrest exceeds the limits set by orders. Escape from custody or confinement is any completed casting off of the custody or restraint of confinement, before being set at liberty by proper authority.

Offenses against correctional custody imposed as nonjudicial punishment under article 15, i.e., escape from correctional custody (when physical restraint is cast off) and breach of correctional custody (when a nonphysical restraint is broken), are punishable as violations of article 134.

**ART. 96.
RELEASING PRISONER
WITHOUT PROPER AUTHORITY**

“Any person subject to this code who, without proper authority, releases any prisoner committed to his charge, or who through neglect or design suffers any such prisoner to escape, shall be punished as a court-martial may direct, whether or not the prisoner was committed in strict compliance with law.”

**ART. 97.
UNLAWFUL DETENTION**

“Any person subject to this code who, except as provided by law, apprehends, arrests, or confines any person shall be punished as a court-martial may direct.”

Any unlawful restraint of another's freedom will result in a violation of this article, whether or not such action is taken under color of authority. The offense may be committed by one who, being duly authorized to apprehend, arrest, or confine others, exercises such authority unlawfully, or by one not so authorized who effects the restraint of another unlawfully. The apprehension, arrest, or confinement must be against the will of the person restrained.

**ART. 98.
NONCOMPLIANCE WITH
PROCEDURAL RULES**

“Any person subject to this code who—

“(1) is responsible for unnecessary delay in the disposition of any case of a person accused of an offense under this code; or

“(2) knowingly and intentionally fails to enforce or comply with any provision of this code regulating the proceedings before, during or after trial of an accused;

shall be punished as a court-martial may direct.”

**ART. 99.
MISBEHAVIOR BEFORE
THE ENEMY**

“Any member of the armed forces who before or in the presence of the enemy—

“(1) runs away;

“(2) shamefully abandons, surrenders, or delivers up any command, unit, place, or military property which it is his duty to defend;

“(3) through disobedience, neglect, or intentional misconduct endangers the safety of any such command, unit, place, or military property;

“(4) casts away his arms or ammunition;

“(5) is guilty of cowardly conduct;

“(6) quits his place of duty to plunder or pillage;

“(7) causes false alarms in any command, unit, or place under control of the armed forces;

“(8) willfully fails to do his utmost to encounter, engage, capture, or destroy any enemy troops, combatants, vessels, aircraft, or any other thing, which it is his duty so to encounter, engage, capture, or destroy; or

“(9) does not afford all practicable relief and assistance to any troops, combatants, vessels, or aircraft of the armed forces belonging to the United States or their allies when engaged in battle;

shall be punished by death or such other punishment as a court-martial may direct.”

The "enemy" includes any hostile body that our forces may be opposing. Whether a person is "before the enemy" is not a question of distance, but of tactical relation.

Abandonment by a subordinate would ordinarily be charged as "running away"; the running away must be to avoid actual or impending combat but need not be the result of fear. Abandoning, surrendering, or delivering up a command primarily concerns commanders.

"Cowardly conduct," as used in section 5, is an act of cowardice such as refusal or abandonment of a performance of duty as the result of fear before or in the presence of the enemy.

"All practicable relief and assistance," as used in section 9, means all relief and assistance which should be afforded within the limitations imposed upon one by reason of his own specific task or mission. No offense is committed by failing to afford relief when one's own mission would tolerate no delay or deviation.

ART. 100. SUBORDINATE COMPELLING SURRENDER

"Any person subject to this code who compels or attempts to compel the commander of any place, vessel, aircraft, or other military property, or of any body of members of the armed forces, to give it up to an enemy or to abandon it, or who strikes the colors or flag to an enemy without proper authority, shall be punished by death or such other punishment as a court-martial may direct."

The offenses here contemplated are similar to mutiny, but do not require concert of action. The compulsion to surrender must be by acts rather than by words. To "strike the colors or flag" is to surrender. The offense is committed by anyone subject to the Code who assumes to himself the authority to surrender a military force or position when he is not authorized to do so either by competent authority or by the necessities of battle.

ART. 101. IMPROPER USE OF COUNTERSIGN

"Any person subject to this code who in time of war discloses the parole or countersign to any person not entitled to receive it or who gives to another who is entitled to receive and use the parole or countersign a different parole or countersign from that which, to his knowledge, he was authorized and required to give, shall be punished by death or such other punishment as a court-martial may direct."

A countersign is a word given from the principal headquarters of a command to aid guards and sentinels in their scrutiny of persons who apply to pass the lines. It consists of a secret challenge and a password. A parole is a word used as a check on the countersign; it is imparted only to those who are entitled to inspect guards and to commanders of guards.

It is no defense under the terms of this article that the accused did not know that the person to whom he communicated the countersign or parole was not entitled to receive it. Before imparting such a word a person subject to military law must determine that the person to whom he presumes to make known the word is a person authorized to receive it.

ART. 102. FORCING A SAFEGUARD

"Any person subject to this code who forces a safeguard shall suffer death or such other punishment as a court-martial may direct."

A safeguard is a detachment, guard, or detail posted by a commander for the protection of persons, places, or property of the enemy, or of a neutral affected by the relationship of belligerent forces in their prosecution of war or during circumstances amounting to a state of belligerency. The term also includes a written order left by a commander with an enemy subject or posted upon enemy property for the protection of the individual or property

concerned. The effect of a safeguard is to pledge the honor of the Nation that the person or property shall be respected by the national armed force.

Provided that the accused was or should have been aware of the existence of the safeguard, any trespass on the protection of the safeguard will constitute an offense under the article, whether the safeguard was imposed in time of war or in circumstances amounting to a state of belligerency short of a formal state of war.

ART. 103. CAPTURED OR ABANDONED PROPERTY

“(a) All persons subject to this code shall secure all public property taken from the enemy for the service of the United States, and shall give notice and turn over to the proper authority without delay all captured or abandoned property in their possession, custody, or control.

“(b) Any person subject to this code who—

“(1) fails to carry out the duties prescribed in subsection(a);

“(2) buys, sells, trades, or in any way deals in or disposes of captured or abandoned property, whereby he receives or expects any profit, benefit, or advantage to himself or another directly or indirectly connected with himself; or

“(3) engages in looting or pillaging;

shall be punished as a court martial may direct.”

Immediately upon its capture from the enemy, public property becomes the property of the United States. Every person subject to military law has an immediate duty to take such steps as are within his powers and functions to secure such property to the service of the United States and to protect it from destruction or loss.

Reports of receipt of captured or abandoned property, private as well as public, are to be made through such channels as are required by current regulations or orders or the customs of the service.

Disposal as well as receipt of captured or abandoned property for personal profit, benefit, or advantage is prohibited, as is destruction or abandonment of such property.

“Looting or pillaging” means unlawfully seizing or appropriating property located in enemy or occupied territory, which has been left behind, or was owned by, or in the custody of, the enemy or occupied state or a person who is or was under the protection of the enemy or occupied state. The unauthorized removal or appropriation of any part of the equipment of a seized or captured vessel, or the unlawful seizure or appropriation of property owned by or in the custody of the officers, crew, or passengers on board a seized or captured vessel, constitutes the offense of looting and pillaging wherever the vessel may be located.

ART. 104. AIDING THE ENEMY

“Any person who—

“(1) aids, or attempts to aid, the enemy with arms, ammunition, supplies, money, or other things; or

“(2) without proper authority, knowingly harbors or protects or gives intelligence to, or communicates or corresponds with or holds any intercourse with the enemy, either directly or indirectly;

shall suffer death or such other punishment as a court-martial or military commission may direct.”

Article 104 applies to all persons, whether or not they are otherwise subject to military law. “Enemy” denotes citizens as well as members of military organizations, for all the citizens of one belligerent are enemies of the government and of all the citizens of the other.

An enemy is harbored or protected when, without proper authority, he is shielded, either physically or by use of any artifice, aid, or

representation, from any injury or misfortune which in the chance of war may befall him. It must appear that the offense is knowingly committed.

Giving intelligence to the enemy is a particular case of corresponding with the enemy, rendered more heinous by the fact that the communication contains intelligence that may be useful to the enemy. The word "intelligence" connotes that the information conveyed is true or implies the truth, at least in part.

Any unauthorized communication with the enemy, no matter what may be its tenor or intent, is denounced by this article. The offense is complete the moment the communication issues from the accused, whether it reaches its destination or not. It is essential to prove that the offense was knowingly committed.

ART. 105. MISCONDUCT AS A PRISONER

"Any person subject to this code who, while in the hands of the enemy in time of war—

"(1) for the purpose of securing favorable treatment by his captors acts without proper authority in a manner contrary to law, custom, or regulation, to the detriment of others of whatever nationality held by the enemy as civilian or military prisoners; or

"(2) while in a position of authority over such persons maltreats them without justifiable cause;

shall be punished as a court-martial may direct."

The offense under article 105 (1) covers unauthorized conduct by a prisoner of war in the hands of the enemy which tends to ameliorate his condition to the detriment of other prisoners. Such acts may be the reporting of plans to escape or the reporting of secret caches of food, equipment, or arms. The acts must be related to the captors and tend to have the probable effect of bestowing upon the accused some favor with, or advantage from, the captors. The act of the accused must be contrary

to law, custom, or regulation. For example, the escape of a prisoner might result in closer confinement or other measures against fellow prisoners still in the hands of the enemy. Such escape, however, is not an offense under this article, as escape from the enemy is regarded as authorized by custom.

To constitute an offense under article 105 (2), maltreatment of fellow prisoners under one's authority must be real, although not necessarily physical, and it must be without justifiable cause. Abuse of an inferior by inflammatory and derogatory words may, through mental anguish, constitute this offense. To assault, to strike, to subject to improper punishment, or to deprive of benefits would constitute maltreatment if done without justifiable cause.

ART. 106. SPIES

"Any person who in time of war is found lurking as a spy or acting as a spy in or about any place, vessel, or aircraft, within the control or jurisdiction of any of the armed forces, or in or about any shipyard, any manufacturing or industrial plant, or any other place or institution engaged in work in aid of the prosecution of the war by the United States, or elsewhere, shall be tried by a general court-martial or by a military commission and on conviction shall be punished by death."

The words "any person" bring within the jurisdiction of courts-martial and military commissions all persons of whatever nationality or status who commit the offense of spying.

The principal characteristic of this offense is a clandestine dissimulation of the true object sought, which object is an endeavor to obtain information with the intention of communicating it to the hostile party. Thus, members of a military organization not wearing disguise, dispatch drivers, whether members of a military organization or civilians, and persons in ships and aircraft, who carry out their missions openly and who have penetrated hostile lines are not to be considered spies, for while they may

have resorted to concealment they have not practiced dissimulation.

To be guilty of this offense, it is not essential that the accused obtain the information sought or that he communicate it to the enemy.

**ART. 107.
FALSE OFFICIAL
STATEMENTS**

“Any person subject to this code who, with intent to deceive, signs any false record, return, regulation, order, or other official document, knowing it to be false, or makes any other false official statement knowing it to be false, shall be punished as a court-martial may direct.”

The false representation must be made officially with the intent to deceive, and it must be one which the accused does not believe to be true. The expectation of material gain is not an essential element of the offense.

A statement made by a suspected or accused person, under interrogation, is not official within the meaning of article 107 unless the person has an independent official obligation to speak in the matter under investigation and he elects to speak rather than remain silent as he has a right to do under article 31.

**ART. 108.
MILITARY PROPERTY OF
THE UNITED STATES—
LOSS, DAMAGE, DESTRUCTION,
OR WRONGFUL DISPOSITION**

“Any person subject to this code who, without proper authority—

“(1) sells or otherwise disposes of;

“(2) willfully or through neglect damages, destroys, or loses; or

“(3) willfully or through neglect suffers to be lost, damaged, destroyed, sold, or wrongfully disposed of;

“any military property of the United States, shall be punished as a court-martial may direct.”

Whether the property involved was issued at all or whether it was issued to someone other than the accused is immaterial. However, as far as the offenses of willfully or through neglect damaging, destroying, or losing military property are concerned, if it is shown that the property was issued to the accused, it may be presumed that the damage, destruction, or loss shown, unless satisfactorily explained, was due to the neglect of the accused; this rule applies only to items of individual issue.

A willful damage, destruction, or loss is one that is intentionally occasioned. Loss, destruction, or damage is occasioned through neglect due to lack of proper attention to the natural or foreseeable consequences of an act or due to omission of appropriate action.

The loss, damage, destruction, sale, or disposition may be said to be willfully suffered by one who, knowing the act to be imminent or actually occurring, takes no steps to prevent it; for example, a member of the boat crew who, seeing a small boat tied alongside, allows the boat to be damaged or lost by chafing or striking.

**ART. 109.
PROPERTY OTHER THAN
MILITARY PROPERTY OF
UNITED STATES—WASTE,
SPOILAGE OR DESTRUCTION**

“Any person subject to this code who willfully or recklessly wastes, spoils, or otherwise willfully and wrongfully destroys or damages any property other than military property of the United States shall be punished as a court-martial may direct.”

“Wastes” and “spoils” refer to wrongful acts of voluntary destruction, such as burning down buildings, burning piers, tearing down fences, or cutting down trees. To be destroyed, property need be only sufficiently injured to be useless for the purpose for which it was intended. “Damage” consists of any physical injury to the property. The property must be other than military property of the United States and must belong to one other than the accused.

**ART. 110.
IMPROPER HAZARDING
OF VESSEL**

“(a) Any person subject to this code who willfully and wrongfully hazards or suffers to be hazarded any vessel of the armed forces shall suffer death or such other punishment as a court-martial may direct.

“(b) Any person subject to this code who negligently hazards or suffers to be hazarded any vessel of the armed forces shall be punished as a court-martial may direct.”

The words “to suffer” mean to allow or permit, and a ship is willfully suffered to be hazarded by one who, although not in direct control of the vessel, knows a danger to be imminent but takes no steps to prevent it; for example, a plotting officer of a ship underway who fails to report to the officer of the deck a radar target that he observes to be on a collision course with, and dangerously close to, his own ship.

Stranded means run aground so that the vessel is fast for a time. If a vessel “touches and goes,” she is not stranded; if she “touches and sticks,” she is.

No person is relieved of culpability who fails to perform duties such as are imposed upon him by the general responsibilities of his grade, or by the customs of the service, for the safety and protection of vessels of the Armed Forces, simply because such duties are not specifically enumerated in a regulation or an order. However, a mere error in judgment such as a reasonably able person might have committed under the same circumstances, will not constitute an offense under this article.

**ART. 111.
DRUNKEN OR
RECKLESS DRIVING**

“Any person subject to this code who operates any vehicle while drunk, or in a reckless or wanton manner, shall be punished as a court-martial may direct.”

Operating a vehicle includes not only driving or guiding it while in motion, either in person or through the agency of another, but also the setting of its motive power in action or the manipulation of its controls so as to cause the vehicle to move. The term “vehicle” applies to all types of land transportation whether or not motor driven or passenger-carrying. Drunken or reckless operation of water or air transportation may be charged as a violation of article 134. For the meaning of drunk, see the remarks following article 112.

Recklessness depends upon the ultimate question: whether, under all the circumstances, the accused’s manner of operation of the vehicle was of that heedless nature which made it actually or imminently dangerous to the occupants or to the rights or safety of others.

While the same course of conduct may constitute both drunken and reckless driving, the article proscribes these as separate offenses, and under certain circumstances, both offenses may be charged.

**ART. 112.
DRUNK ON DUTY**

“Any person subject to this code, other than a sentinel or lookout, who is found drunk on duty, shall be punished as a court-martial may direct.”

The term “duty” as used in this article means military duty, but it is important to note that every duty that an officer or enlisted person may legally be required by superior authority to execute is necessarily a military duty.

Whether the drunkenness was caused by liquor or drugs is immaterial; and any intoxication that is sufficient to impair the rational and full exercise of the mental and physical faculties is drunkenness within the meaning of the article.

It is necessary that the accused be found drunk while actually on the duty alleged, and the fact that he became drunk before going on duty does not affect the question of his guilt. The drunkenness must coincide with the duty in point of time. If, however, he does not undertake the responsibility or enter upon the

duty at all, his conduct does not fall within the terms of this article, nor does that of a person who absents himself from his duty and is found drunk while so absent. Included within this article, however, is drunkenness while on duty of an anticipatory nature, such as that of an aircraft crew ordered to stand by for flight duty, or for an enlisted person ordered to stand by for guard duty.

Within the meaning of this article, when in actual exercise of command, the commanding officer of a post, a command, a detachment in the field, or a ship is constantly on duty.

In the case of enlisted persons, the term "on duty" relates to duties of routine or detail, in garrison, at a station, or in the field, and does not relate to those periods when, no duty being required of them by orders or regulations, men occupy the status of leisure known as "off duty" or "liberty."

In a region of active hostilities the circumstances are often such that all members of a command may properly be considered as being continuously on duty within the meaning of this article.

ART. 113. MISBEHAVIOR OF SENTINEL

"Any sentinel or lookout who is found drunk or sleeping upon his post, or leaves it before he is regularly relieved, shall be punished, if the offense is committed in time of war, by death or such other punishment as a court-martial may direct, but if the offense is committed at any other time, by such punishment other than death as a court-martial may direct."

A post is not limited by an imaginary line, but includes, according to orders or circumstances, such surrounding area as may be necessary for the proper performance of the duties for which the sentinel or lookout was posted. A sentinel or lookout is on post within the meaning of this article not only when he is at a post physically defined, as is ordinarily the case in garrison or aboard ship, but also, for

example, when he may be stationed in observation against the approach of an enemy, or detailed to use any equipment designed to locate friend, foe, or possible danger, or at a designated place to maintain internal discipline, or to guard stores, or to guard prisoners while in confinement or at work.

This article does not include an officer or enlisted person of the guard, or of a ship's watch, not posted or performing the duties of a sentinel or lookout, nor does it include a person whose duties as a watchman or attendant do not require that he be constantly alert. Misbehavior by such persons would constitute violation of articles 92(3) or 134.

ART. 114. DUELING

"Any person subject to this code who fights or promotes, or is concerned in or connives at fighting a duel, or who, having knowledge of a challenge sent or about to be sent, fails to report the fact promptly to the proper authority, shall be punished as a court-martial may direct."

A duel is a prearranged deadly combat between two persons for private reasons. Urging or taunting another to challenge to duel, acting as a second or as carrier of a challenge or acceptance, or otherwise furthering or contributing toward the fighting of a duel are examples of promoting a duel. Knowledge of preparations for a duel creates an obligation to notify appropriate authorities and to take other reasonable preventive action, and failure to do so constitutes an offense against this article.

ART. 115. MALINGERING

"Any person subject to this code who for the purpose of avoiding work, duty, or service—

"(1) feigns illness, physical disablement, mental lapse or derangement; or

“(2) intentionally inflicts self-injury;

shall be punished as a court-martial may direct.”

**ART. 116.
RIOT OR
BREACH OF PEACE**

“Any person subject to this code who causes or participates in any riot or breach of the peace shall be punished as a court-martial may direct.”

“Riot” denotes a breach of the peace causing public terror committed by three or more persons, with a common purpose to execute action against any who may oppose them. Without such a common purpose to be effected by concerted action, the acts of an assembly of three or more persons, even though all commit breaches of the peace in the same manner, do not constitute a riot. For example, in the case of a group of people discharging cannon crackers in violation of law, it was held that each person was intent on discharging his own cannon crackers and that there was no intent among the persons so assembled mutually to assist each other.

A “breach of the peace” is an unlawful disturbance of the peace by an outward demonstration of a violent and turbulent nature.

Engaging in an affray, unlawful discharge of firearms in a public street, and the use of vile or abusive words to another in a public place are a few instances of the type of conduct which may constitute a breach of the peace.

**ART. 117.
PROVOKING SPEECHES
OR GESTURES**

“Any person subject to this code who uses provoking or reproachful words or gestures towards any other person subject to this code shall be punished as a court-martial may direct.”

“Provoking” and “reproachful” describe those words or gestures that are used in the

presence of the person to whom they are directed and that tend to induce breaches of the peace. They do not include reprimands, censures, reproofs, and the like, which may properly be administered in the interests of training, efficiency, or discipline in the Armed Forces.

**ART. 118.
MURDER**

“Any person subject to this code who, without justification or excuse, unlawfully kills a human being, when he—

“(1) has a premeditated design to kill;

“(2) intends to kill or inflict great bodily harm;

“(3) is engaged in an act which is inherently dangerous to others and evinces a wanton disregard of human life; or

“(4) is engaged in the perpetration or attempted perpetration of burglary, sodomy, rape, robbery, or aggravated arson;

is guilty of murder, and shall suffer such punishment as a court-martial may direct, except that if found guilty under clause (1) or (4), he shall suffer death or imprisonment for life as a court-martial may direct.”

Whether an unlawful killing constitutes murder or a lesser offense depends upon the circumstances under which it occurred.

A homicide committed in the proper performance of a legal duty is justifiable. Thus, killing in suppression of a mutiny or riot, and killing to prevent the commission of an offense attempted by force or surprise, such as burglary, are cases of justifiable homicide.

The general rule is that the acts of a subordinate, done in good faith in compliance with his supposed duty or orders, are justifiable. This justification does not exist, however, when those acts are manifestly beyond the scope of

s authority; or when an order is such that a man of ordinary sense and understanding would know it to be illegal; or when the subordinate willfully or through negligence performs acts endangering the lives of innocent parties in the discharge of his duty to prevent escape or effect an arrest.

A homicide that is the result of an accident or misadventure in doing a lawful act, or an act that is done in self-defense, is excusable. To excuse a person for killing on the ground of self-defense, he must have believed on reasonable grounds that killing was necessary to save his life or the lives of those he sought to protect. One matter relating to such necessity is whether the accused could have retreated with safety, but there is no categorical requirement to do so. One is not required to retreat if he believes that there is no way he can retreat consistent with his own safety, or if he is in his own home or other place where he has a right to remain. To avail himself of the right of self-defense, the person doing the killing must not have been the aggressor or intentionally provoked the dispute.

Premeditated murder is murder committed after the formation of a specific intent to kill someone and full consideration of the intended act.

An unlawful killing without premeditation is murder when the accused intended to kill or inflict great bodily harm. The intent need not be directed toward the person killed, nor must it exist for any particular time before commission of the act or have previously existed at all. It is sufficient that it existed at the time of the act or commission (but see article 119). Great bodily harm refers to serious injuries; it does not include minor injuries such as a black eye or a bloody nose.

Engaging in an act inherently dangerous to others, without any intent to cause the death of, or great bodily harm to, any particular person, even with a wish that death may not be caused, may constitute murder if the performance of the act shows a wanton disregard of human life. Examples of this sort of conduct are: throwing a live grenade in jest

toward others or flying an aircraft very low over a crowd to make it scatter.

A homicide committed during the perpetration or attempted perpetration of the offenses specified in subparagraph (4) constitutes murder even though the slaying may be unintentional or accidental.

ART. 119. MANSLAUGHTER

“(a) Any person subject to this code who, with an intent to kill or inflict great bodily harm, unlawfully kills a human being in the heat of sudden passion caused by adequate provocation is guilty of voluntary manslaughter and shall be punished as a court-martial may direct.

“(b) Any person subject to this code who, without an intent to kill or inflict great bodily harm, unlawfully kills a human being—

“(1) by culpable negligence;

or

“(2) while perpetrating or attempting to perpetrate an offense, other than those named in clause (4) of article 118, directly affecting the person;

is guilty of involuntary manslaughter and shall be punished as a court-martial may direct.”

The provocation here referred to must be adequate to excite uncontrollable passion in the mind of a reasonable man, and the killing must be committed because of the passion. If, judged by the standard of a reasonable man, sufficient cooling time elapses between the provocation and the killing, it is murder, even if the passion of the particular accused persists. The provocation must not be sought or induced as an excuse for killing. Instances of adequate provocation to constitute voluntary manslaughter are assault and battery inflicting great or grievous bodily harm, or an unlawful imprisonment.

Culpable negligence, as used in 119(b), is a negligent act or omission accompanied by a culpable disregard for its foreseeable consequences to others. Instances are: negligently conducting target practice so that bullets go in the direction of an inhabited house within range, or carelessly leaving poisons or dangerous drugs where they may endanger life.

By an offense "directly affecting the person" is meant one affecting some particular person as distinguished from one affecting society in general. Among offenses directly affecting the person are the various types of assault, battery, false imprisonment, voluntary engagement in an affray, the use of more force than is reasonably necessary in the suppression of a mutiny or riot, and maiming.

ART. 120. RAPE AND CARNAL KNOWLEDGE

"(a) Any person subject to this code who commits an act of sexual intercourse with a female not his wife, by force and without her consent, is guilty of rape and shall be punished by death or such other punishment as a court-martial may direct.

"(b) Any person subject to this code who, under circumstances not amounting to rape, commits an act of sexual intercourse with a female not his wife who has not attained the age of sixteen years, is guilty of carnal knowledge and shall be punished as a court-martial may direct.

"(c) Penetration, however slight, is sufficient to complete these offenses."

The victim of rape may be of any age. Force and lack of consent are indispensable to the offense. Mere verbal protestations and a pretense of resistance are not sufficient to show lack of consent, and if a woman fails to take such measures to frustrate the execution of a man's design as she is able to make and as are called for by the circumstances, the inference may be drawn that she did in fact consent. All the surrounding circumstances are to be considered

in determining whether a woman gave her consent.

If there is actual consent, although obtained by fraud, the act is not rape; but if, to the accused's knowledge, the woman is of unsound mind or unconscious to an extent rendering her incapable of giving consent, the act is rape. Likewise, the acquiescence of a female of such tender years that she is incapable of understanding the nature of the act is not consent.

It is no defense to a charge of carnal knowledge that the accused is ignorant or misinformed as to the true age of the female, or that she was of prior unchaste character; it is the fact of the girl's age and not his knowledge or belief which fixes his criminal responsibility. An accused does not violate this article by committing an act of sexual intercourse (with consent) with a female of 16 years or over. However, if the statute of a jurisdiction denounces sexual intercourse with a female under a certain age greater than 16 years, the violation of such a statute within the territorial limits of the jurisdiction may constitute conduct bringing discredit upon the Armed Forces in violation of article 134.

ART. 121. LARCENY AND WRONGFUL APPROPRIATION

"(a) Any person subject to this code who wrongfully takes, obtains or withholds by any means, from the possession of the owner or of any other person any money, personal property, or article of value of any kind—

"(1) with intent permanently to deprive or defraud another person of the use and benefit of property or to appropriate it to his own use or the use of any person other than the owner, steals that property and is guilty of larceny; or

"(2) with intent temporarily to deprive or defraud another person of the use and benefit of property or to appropriate it to his own use or the use of any person other than the

owner, is guilty of wrongful appropriation.

“(b) Any person found guilty of larceny or wrongful appropriation shall be punished as a court-martial may direct.”

“Any other person” means any person (even a person who himself had stolen the property) who is an owner of the property by virtue of his possession or right to possession thereof. As a general rule, a taking or withholding is wrongful if done without the consent of the owner, and an obtaining of property from the possession of another is wrongful if the obtaining is by false pretense.

The existence of an intent to steal must, in most cases, be inferred from the circumstances. Thus, if a person secretly takes property, hides it, and denies that he knows anything about it, an intent to steal may well be inferred; but if he takes it openly and returns it, this would tend to negate such an intent.

Although ordinarily the taking, obtaining, or withholding need not be for the benefit of the thief himself, a person who divests another of property intending only to restore it to the possession of the true owner, as when he takes stolen property from a thief with that intent, does not commit larceny or wrongful appropriation.

A taking or withholding of lost property by the finder is larceny if accompanied by an intent to steal and if a clue to the identity of the owner, or through which such identity may be traced, is furnished by the character, location, or marking of the property, or by other circumstances.

The distinction between larceny and wrongful appropriation lies in the words “permanently,” used in defining larceny, and “temporarily,” used in defining wrongful appropriation.

Instances of wrongful appropriation are: taking the automobile of another without permission, with intent to drive it a short distance and then return it or cause it to be returned to the owner; obtaining a service weapon by falsely pretending to be about to go on guard duty, the weapon being thus obtained

with intent to use it on a hunting trip and thereafter effect its return.

ART. 122. ROBBERY

“Any person subject to this code who, with intent to steal, takes anything of value from the person or in the presence of another, against his will, by means of force or violence or fear of immediate or future injury to his person or property or the person or property of a relative or member of his family or of anyone in his company at the time of the robbery, is guilty of robbery and shall be punished as a court-martial may direct.”

When a robbery is committed by force or violence, there must be actual force or violence to the person, preceding or accompanying the taking against his will, and it is immaterial that there is no fear engendered in the victim.

When a robbery is committed by putting the victim in fear, there need be no actual force or violence, but there must be demonstrations of force or menaces by which the victim is placed in such fear that he is warranted in making no resistance.

ART. 123. FORGERY

“Any person subject to this code who, with intent to defraud—

“(1) falsely makes or alters any signature to, or any part of, any writing which would, if genuine, apparently impose a legal liability on another or change his legal right or liability to his prejudice; or

“(2) utters, offers, issues, or transfers such a writing, known by him to be so made or altered;

is guilty of forgery and shall be punished as a court-martial may direct.”

There are certain aspects common to both aspects of forgery. These are (a) a writing falsely

made or altered; (b) an apparent capability of the writing so falsely made or altered to impose a legal liability to his prejudice; and (c) an intent to defraud.

Forgery is not committed by the genuine making of a false instrument for the purpose of defrauding another. For example, a check bearing the signature of the maker has no money or credit, and even with intent to defraud the payee or the bank, is not a forgery, for the check, though false, is not falsely made. (Such act would constitute a violation of article 123a.) However, signing the name of another to a check without authority and with intent to defraud is forgery, as the signature is falsely made.

A forgery may be committed by a person signing his own name to an instrument. For example, if a check payable to the order of a certain person comes into the hands of another person of the same name, the receiver commits forgery if, knowing the check to be another's, he indorses it with his own name, intending to defraud.

Some of the instruments most frequently subject to forgery are checks, orders for delivery of money or goods, military orders directing travel, and receipts. A writing may be falsely "made" by materially altering an existing writing, by filling in a paper signed in blank, or by signing an instrument already written.

ART. 123a.

MAKING, DRAWING, OR UTTERING CHECK, DRAFT, OR ORDER WITHOUT SUFFICIENT FUNDS

"Any person subject to this code who—

"(1) for the procurement of any article or thing of value, with intent to defraud; or

"(2) for the payment of any past due obligation, or for any other purpose, with intent to deceive;

makes, draws, utters, or delivers any check, draft, or order for the payment of money upon any bank or other depository, knowing at the time that the

maker or drawer has not or will not have sufficient funds in, or credit with, the bank or other depository for the payment of that check, draft, or order in full upon its presentment, shall be punished as a court-martial may direct. The making, drawing, uttering, or delivering by a maker or drawer of a check, draft, or order, payment of which is refused by the drawee because of insufficient funds of the maker or drawer in the drawee's possession or control, is prima facie evidence of his intent to defraud or deceive and of his knowledge of insufficient funds in, or credit with, that bank or other depository, unless the maker or drawer pays the holder the amount due within five days after receiving notice, orally or in writing, that the check, draft, or order was not paid on presentment. In this section, the word 'credit' means an arrangement or understanding, express or implied, with the bank or other depository for the payment of that check, draft, or order."

This article provides specific statutory authority for the prosecution of bad check offenses. In the absence of evidence indicating otherwise, bad faith might be shown by the maker's or drawer's failure to effect redemption within the 5-day period provided for in the article. The offense of wrongfully and dishonorably failing to maintain sufficient funds for payment of checks upon presentment, in violation of article 134, is a lesser included offense under this article, not requiring proof of fraudulent intent.

ART. 124. MAIMING

"Any person subject to this code who, with intent to injure, disfigure, or disable, inflicts upon the person of another an injury which—

"(1) seriously disfigures his person by any mutilation thereof;

"(2) destroys or disables any member or organ of his body; or

“(3) seriously diminishes his physical vigor by the injury of any member or organ; is guilty of maiming and shall be punished as a court-martial may direct.”

It is maiming to put out a man's eye, to cut off his hand, foot, or finger, or to knock out his front teeth, as these injuries destroy or disable those members or organs. It is maiming to cut off an ear or to scar a face with acid, as these injuries seriously disfigure the person. It is also maiming to injure an internal organ so as to seriously diminish the physical vigor of a person.

The disfigurement, diminishment of vigor, or destruction or disablement of any member or organ must be a serious injury, one of a substantially permanent nature. The offense is complete if such an injury is inflicted, however, even though there is a possibility that the victim may eventually recover the use of the member or organ, or that the disfigurement may be cured by surgery.

Infliction of the type of injuries listed above is presumptive evidence of an intent to injure, disfigure, or disable another. Even one who intends only a slight injury commits maiming if the injury inflicted in fact is within the terms of the article; a specific intent to maim is not required. If the injury be done under circumstances that would justify or excuse homicide, the offense of maiming is not committed.

ART. 125. SODOMY

“(a) Any person subject to this code who engages in unnatural carnal copulation with another person of the same or opposite sex or with an animal is guilty of sodomy. Penetration, however slight, is sufficient to complete the offense.

“(b) Any person found guilty of sodomy shall be punished as a court-martial may direct.”

Any unnatural method of carnal copulation is prohibited by this article. Any penetration,

however slight, is sufficient to complete the offense and emission is not necessary.

ART. 126. ARSON

“(a) Any person subject to this code who willfully and maliciously burns or sets on fire an inhabited dwelling, or any other structure, movable or immovable, wherein to the knowledge of the offender there is at the time a human being, is guilty of aggravated arson and shall be punished as a court-martial may direct.

“(b) Any person subject to this code who willfully and maliciously burns or sets fire to the property of another, except as provided in subsection (a), is guilty of simple arson and shall be punished as a court-martial may direct.”

In aggravated arson danger to human life is the essential element; in simple arson it is injury to the property of another. In either case it is immaterial that no one is, in fact, injured.

ART. 127. EXTORTION

“Any person subject to this code who communicates threats to another person with the intention thereby to obtain anything of value or any acquittance, advantage, or immunity is guilty of extortion and shall be punished as a court-martial may direct.”

A threat may be communicated by word of mouth or in a writing, the essential element of the offense being the knowledge of the victim. An acquittance is, in general terms, a release or discharge from an obligation. An intent to obtain any advantage or immunity of any description may include an intent to make a person do an act against his will.

The threat sufficient to constitute extortion may be a threat against the person or property of the individual threatened or of any member of his family or any other person held dear to him, to do an unlawful injury, to accuse of

crime, to expose or impute any deformity or disgrace, or to expose any secret or to do any other harm.

**ART. 128.
ASSAULT**

“(a) Any person subject to this code who attempts or offers with unlawful force or violence to do bodily harm to another person, whether or not the attempt or offer is consummated, is guilty of assault and shall be punished as a court-martial may direct.

“(b) Any person subject to this code who—

“(1) commits an assault with a dangerous weapon or other means or force likely to produce death or grievous bodily harm; or

“(2) commits an assault and intentionally inflicts grievous bodily harm with or without a weapon;

is guilty of aggravated assault and shall be punished as a court-martial may direct.”

An offer to do bodily harm to another, as distinguished from an attempt to do such harm, is a placing of the other in reasonable apprehension that force will at once be applied to his person. Pointing an unloaded pistol which the assailant knows to be unloaded at another is not an attempt to do bodily harm, for the assailant knows that he cannot shoot the victim; yet such an act may be an assault if the victim is put in reasonable fear of bodily injury. For example, if A points a pistol at B and says to B, “If you don’t hand over your watch, you’re dead,” A has committed an assault upon B.

An assault in which the attempt or offer to do bodily harm is consummated by the infliction of harm is called a battery. A battery is an unlawful, and intentional or culpably negligent, application of force to the person of another by a material agency used directly or indirectly. It may be a battery to set a dog to biting a person, to shoot a person, to cause him to take poison, or to run an automobile into him.

In order to constitute an assault, the act of violence must be unlawful. It must be done without legal justification or excuse and without the consent of the person affected.

Article 128 (b) defines two kinds of aggravated assault. One is an assault with a dangerous weapon or other means or force likely to produce death or grievous bodily harm. The other is an assault, with or without a weapon, in which the assailant intentionally inflicts grievous bodily harm.

A weapon is dangerous when used in such a manner that it is likely to produce death or grievous bodily harm. “Grievous bodily harm” does not include minor injuries, such as a black eye or a bloody nose, but does include fractured or dislocated bones, deep cuts, torn members of the body, serious damage to internal organs, and other serious injuries. When the natural and probable consequence of a particular use of any means or force would be death or bodily harm, it may be said that the means or force is “likely” to produce that result.

With respect to the offense of aggravated assault with a dangerous weapon or other means or force likely to produce death or grievous bodily harm, it is not necessary that death or grievous bodily harm actually be inflicted.

**ART. 129.
BURGLARY**

“Any person subject to this code who, with intent to commit an offense punishable under articles 118 through 128, breaks and enters, in the nighttime, the dwelling house of another, is guilty of burglary and shall be punished as a court-martial may direct.”

The house must be occupied at the time of the breaking and entry, but it is not necessary that anyone actually be in it. Opening a closed door or window or other similar fixture, or cutting out the glass of a window or the netting of a screen is a sufficient breaking, as is entry gained through a trick, false pretense, impersonation, intimidation, or collusion. Entry of any part of the body, even a finger, is sufficient to constitute “entry.” It is not essential that the intruder succeed in carrying

out the intent with which the house was broken into.

**ART. 130.
HOUSEBREAKING**

“Any person subject to this code who unlawfully enters the building or structure of another with intent to commit a criminal offense therein is guilty of housebreaking and shall be punished as a court-martial may direct.”

The initial entering must amount to trespass; this article is not violated if the accused entered the building or structure lawfully, even though he had the intent to commit an offense therein. This offense is broader than burglary in that the place entered need not be a dwelling house; it is not necessary that the place be occupied; it is not essential that there be a breaking; the entry may be either in the night or in the daytime; and the criminal intent is not limited to those offenses punishable under articles 118 through 128.

**ART. 131.
PERJURY**

“Any person subject to this code who in a judicial proceeding or course of justice willfully and corruptly gives, upon a lawful oath or in any form allowed by law to be substituted for an oath, any false testimony material to the issue or matter of inquiry is guilty of perjury and shall be punished as a court-martial may direct.”

“Judicial proceeding” includes a trial by court-martial, and “course of justice” includes an investigation conducted under article 32.

For false testimony to be “willfully and corruptly” given, it must appear that the accused did not believe his testimony to be true.

The false testimony must be with respect to a material matter, but that matter need not be the main issue in the case. Thus perjury may be committed by giving false testimony with respect to the credibility of a material witness,

as well as by giving false testimony concerning either direct or circumstantial evidence.

**ART. 132.
FRAUDS AGAINST
THE GOVERNMENT**

“Any person subject to this code—

“(1) who, knowing it to be false or fraudulent—

“(A) makes any claim against the United States or any officer thereof; or

“(B) presents to any person in the civil or military service thereof, for approval or payment, any claim against the United States or any officer thereof;

“(2) who, for the purpose of obtaining the approval, allowance, or payment of any claim against the United States or any officer thereof—

“(A) makes or uses any writing or other paper knowing it to contain any false or fraudulent statements;

“(B) makes any oath to any fact or to any writing or other paper knowing the oath to be false; or

“(C) forges or counterfeits any signature upon any writing or other paper, or uses any such signature knowing it to be forged or counterfeited;

“(3) who, having charge, possession, custody, or control of any money or other property of the United States, furnished or intended for the armed forces thereof, knowingly delivers to any person having authority to receive it, any amount thereof less than that for which he receives a certificate or receipt; or

“(4) who, being authorized to make or deliver any paper certifying the receipt of any property of the United

States furnished or intended for the armed forces thereof, makes or delivers to any person such writing without having full knowledge of the truth of the statements therein contained and with intent to defraud the United States,

shall, upon conviction, be punished as a court-martial may direct."

To constitute the offense of making a false or fraudulent claim, it is not necessary that the claim be allowed or paid or that it be made by the person to be benefited. The claim must be made with knowledge of its fictitious or dishonest character. As an example, a false claim is made when one having a claim respecting property lost in the military service knowingly includes articles that were not in fact lost and submits the claim.

False and fraudulent claims include not only those containing some material, false statement, but also claims which the claimant knows he is not authorized to present or has no right to collect. A false claim may be tacitly presented, as when a person who knows he is not entitled to certain pay accepts it nevertheless, without disclosing his disqualification.

The offense of making a writing or other paper known to contain a false or fraudulent statement for the purpose of obtaining the approval, allowance, or payment of a claim is complete when the writing or paper is made for that purpose, whether or not any use of the paper has been attempted and whether or not the claim has been presented.

To constitute an offense under article 132(2) (B) the accused must know that the oath was false and have made it for the purpose of obtaining the approval, allowance, or payment of a claim against the United States.

With respect to delivering less than the amount called for by a receipt, it is immaterial by what means, whether deceit, collusion, or otherwise, the accused effected the transaction, or what his purpose was in so doing.

Article 132 (4) makes it an offense to make or deliver a receipt without having full knowledge that it is true and with intent to defraud the United States. For instance, if an officer has been authorized to certify the receipt

of any property of the United States furnished or intended for the Armed Forces, and a receipt is presented for his signature, stating that a certain amount of supplies has been furnished by a certain contractor, it is the officer's duty before signing the paper to know that the full amount of supplies stated in the receipt has in fact been furnished, and that the statements contained in the paper are true. If, with intent to defraud the United States, he signs the paper without that knowledge, he is guilty of a violation of this article.

ART. 133. CONDUCT UNBECOMING AN OFFICER AND A GENTLEMAN

"Any commissioned officer, cadet, or midshipman who is convicted of conduct unbecoming an officer and a gentleman shall be punished as a court-martial may direct."

Conduct that violates this article is action or behavior in an official capacity which, in dishonoring or disgracing the individual as an officer, seriously compromises his character as a gentleman; or action or behavior in an unofficial or private capacity, which, in dishonoring or disgracing the individual personally, seriously compromises his standing as an officer.

Instances of violation of this article are dishonorable failure to pay debts; opening and reading the letters of another without authority; being grossly drunk and conspicuously disorderly in a public place, committing or attempting to commit a crime involving moral turpitude.

This article includes acts made punishable by any other article, provided such acts amount to conduct unbecoming an officer and a gentleman.

ART. 134. GENERAL ARTICLE

"Though not specifically mentioned in this code, all disorders and neglects to the prejudice of good order and discipline in the armed forces, all conduct of a nature to bring discredit upon the armed forces, and crimes and

offenses not capital, of which persons subject to this code may be guilty, shall be taken cognizance of by a general, special, or summary court-martial, according to the nature and degree of the offense, and shall be punished at the discretion of that court.”

Article 134 makes punishable acts or omissions not specifically mentioned in other articles, such as wearing an improper uniform, abusive use of a military vehicle, the careless discharge of a firearm, impersonating an officer, offenses involving official passes, permits, and certificates, and the wrongful possession of a habit-forming narcotic drug.

“Discredit” means “to injure the reputation of,” that is, to bring the service into disrepute. Examples include acts in violation of state or foreign law, failure to pay one’s debts, adultery, bigamy, and indecent acts.

Crimes and offenses not capital include those acts or omissions, not made punishable by another article, which are denounced as crimes or offenses by enactments of Congress, or under authority of Congress and made triable in the Federal civil courts. Certain of such offenses are made punishable wherever committed; others are punishable only if committed within the geographical boundaries of the areas in which they are applicable.

ART. 138.

COMPLAINTS OF WRONGS

“Any member of the armed forces who believes himself wronged by his commanding officer, and who, upon due application to that commanding officer, is refused redress, may complain to any superior commissioned officer, who shall forward the complaint to the officer exercising general court-martial jurisdiction over the officer against whom it is made. The officer exercising general court-martial jurisdiction shall examine into the complaint and take proper measures for redressing the wrong complained of; and he shall, as soon as possible, send to the Secretary concerned a true statement of that

complaint, with the proceedings had thereon.”

This article provides for redress of wrongs inflicted by a commanding officer on his subordinates, and it prescribes the procedure to be followed by subordinates to apply for such redress.

ART. 139.

REDRESS OF INJURIES TO PROPERTY

“(a) Whenever complaint is made to any commanding officer that willful damage has been done to the property of any person or that his property has been wrongfully taken by members of the armed forces, he may, under such regulations as the Secretary concerned may prescribe, convene a board to investigate the complaint. The board shall consist of from one to three commissioned officers and, for the purpose of that investigation, it has power to summon witnesses and examine them upon oath, to receive depositions or other documentary evidence, and to assess the damages sustained against the responsible parties. The assessment of damages made by the board is subject to the approval of the commanding officer, and in the amount approved by him shall be charged against the pay of the offenders. The order of the commanding officer directing charges herein authorized is conclusive on any disbursing officer for the payment by him to the injured parties of the damages so assessed and approved.

“(b) If the offenders cannot be ascertained, but the organization or detachment to which they belong is known, charges totaling the amount of damages assessed and approved may be made in such proportion as may be considered just upon the individual members thereof who are shown to have been present at the scene at the time the damages complained of were inflicted, as determined by the approved findings of the board.”

CHAPTER 8

LEADERSHIP

Civilian executives lead by virtue of superior knowledge (through education and/or experience), and strong character or personality. There is no law that sanctions their position, and they may not be legally responsible for those they lead. Their responsibility, if any, for the well-being of their followers is primarily a moral one. On the other hand, military officers, by virtue of their commissions, have a legal as well as a moral obligation. They represent the Government's responsibility to enforce the law of the land, and they are charged with the well-being of their men and women.

A leader's position is, to an extent, analogous to that of a skilled artisan with a fine set of tools. The artisan keeps his tools in first-class condition, for on them depends his ability to turn out fine work. The leader's tools are the personnel on whom he depends to accomplish the assigned mission. They, like the artisan's tools, must be in good physical condition. But here the analogy ends; personnel are not objects to be polished by supplying their physical needs, to be laid aside when finished with a job, and to be picked up again when needed.

Even though the Navy does everything feasible to provide for the physical well-being of its personnel, the young officer must not assume they are, therefore, well cared for. The officer must be personally concerned with their welfare; must know each individual—their background, capabilities, and limitations. The officer should be aware constantly that debts, personal health, or any one of many problems may destroy a person's peace of mind and, hence, efficiency.

A good officer gains the confidence of the personnel so that they feel free to talk about their problems, knowing they will get all

possible assistance. The occasional person who cannot discuss their problems with a superior sometimes can be skillfully drawn out and helped, but an officer should use care and tact when attempting this.

In every group there are a few people whose sole interest in life is to complete their time and leave the Navy. Most of them merely are disinterested, but from their ranks many troublemakers arise. Any single division may have only one or two of them; in the aggregate, however, they present a tremendous problem. Properly motivated and instilled with a little moral responsibility they can be a great asset. All are important, and we must not lose their services through failure to redirect their interests and energies.

The rebellious ones must be made to understand that it is not only in the Navy but everywhere they go that they will be required to abide by rules and regulations. It must be pointed out to them that rules and regulations serve as guides by which we live and, if followed by all, make life more pleasant and easy for all of us. They must be taught that the more they discipline themselves, the less they will be disciplined by others. They must be shown their importance to the team and that their shipmates must be able to depend on them day by day, as well as in battle. They, along with those that are disinterested, must be made to realize that increasing their knowledge, advancing in rating, and assuming more responsibilities are no longer matters of personal preference but duties.

It is no secret that the Navy of today is besieged by many difficult leadership challenges: recruiting in the all-volunteer force environment, ensuring equality for all, eliminating drug and alcohol abuse and retaining valuable personnel.

It is becoming increasingly apparent that we must ensure that our leaders know how to maximize their capabilities to ensure that each problem is objectively analyzed, that creative and innovative alternatives are developed, and that action plans are pursued with vigorous enthusiasm. With these goals in mind, leadership schools have been established for officers and petty officers.

QUALITIES OF A LEADER

No two leaders are exactly alike. They do not possess the same qualities in equal proportions, nor do they accomplish their ends in the same manner. One thing is certain, however, all great leaders are imbued with certain characteristics and abilities which they utilize to the greatest advantage. Some have turned weaknesses into strengths and, by exercise of willpower and dint of hard work, risen far above what normally might have been expected of them.

Every leader will not possess every quality discussed here, but every good leader will have a substantial number of them. Moreover, the less natural ability a leader has, the more important it is to cultivate the leadership qualities needed to be effective. All truly great leaders share one common characteristic. They are bound by personal codes of conduct—moral responsibility—which do not permit them to exploit their abilities and positions to the detriment of their followers.

Most of us understand about written and unwritten laws that guide our actions and define our duties—"thou shalt" and "thou shalt not" by which we are required to abide. Those are rules established by governments and by common usage. If we break the laws or neglect the duties, authorities may bestow suitable punishments on us.

There are, however, other laws and other duties that have no legal standing as far as any lawmaking or law enforcing branch of government is concerned. These are moral laws and duties. Each person establishes these for himself, based on his own principles. Depending on the character of the person, they can be

extensive and more binding than any statutory laws, or they can be completely nonexistent. There is no legal punishment for ignoring these laws and duties, and the only enforcer is each person's own conscience.

In various places throughout this text we quote rules and regulations, at times explaining them in more or less detail. Therefore, we feel we may assume the reader is, by now, familiar with legal responsibilities. But what about those moral responsibilities? The Navy expects its personnel to demonstrate more than minimum standards of moral responsibility. Commanding officers and others in authority, for example, are required to set good examples of virtue, honor, patriotism, and subordination; to be vigilant in inspecting the conduct of persons under their command; to suppress all dissolute and immoral practices; and to take necessary and proper procedures to promote and safeguard the morale, physical well-being, and general welfare of persons under their command.

The history of effective naval leadership has isolated additional moral principles that have characterized successful leaders from the very beginning, down to our present time.

LOYALTY

Loyalty means a true, faithful, strong (even enthusiastic) devotion to one's country. Ordinarily, this type of loyalty will be assumed and never questioned, but loyalty must also be broadened to include one's superiors and one's subordinates.

Human nature is such that the ordinary person wants to and will extend loyalty to others in his organization. In the long run, however, everyone must earn the right to that loyalty, and part of the price paid for this loyalty is loyalty to others. Enlisted personnel are particularly sensitive about loyalty extended to them and are quick to discern and resent its absence. The degree of loyalty a division officer shows toward the division has a direct bearing on the morale of division personnel. Most persons have a high sense of duty, and self-respect will not allow them to neglect that duty merely to spite a superior. But the officer who has not earned the

loyalty of the personnel cannot expect to receive that extra effort above the call of duty which is so often necessary to accomplish a mission. This brings us to another important quality, devotion to duty.

DEVOTION TO DUTY

Devotion to duty is closely allied to loyalty. In fact, it might be defined as loyalty to the post or position one holds. Occasionally immature young persons endowed with talents which they feel are superior to those required to fill the minor positions in which they find themselves may become resentful because their abilities are not utilized to better advantage. Consequently, their performance falls off.

A more enlightened individual might assume that, because the post exists, it must be important even though the importance is not readily apparent. Assuming this, such an individual gives a little more to the position than it seems to require. He spends his extra energy and talents learning a new and more important job. Thus he fulfills his obligation to his organization, inspires other personnel to greater efforts, and earns the respect of all concerned. There is little doubt as to the choice between these two individuals to fill the first important opening.

The ambitious individual described above would be considered a satisfying asset in any civilian firm; employers would keep their eyes on him and perhaps expect great things of him. However, mere ambition is not enough in the military service. An officer or enlisted person in any service is expected to place duty above self. Everyone at all times must do their duty to the best of their ability—not because of the personal gain involved but because that is the most expeditious and perhaps only way of accomplishing the mission.

Each person who refuses to shoulder their share of the load makes it that much heavier for the rest of the unit. Hardships may be increased, lives may be sacrificed needlessly, and the unit may fail in its mission. The well-known parable of the loss of a kingdom through want of a horse describes the situation perfectly.

The ability to take orders is a quality that should be discussed along with devotion to duty. One so closely follows the other that it is difficult to distinguish between them. Any position is usually covered by standing orders designed to assist the person holding the position in doing the job effectively; an order received immediately becomes a duty of the recipient. Therefore, the most trivial order, even one given in the nature of a reminder—necessary or not—must not be resented. It must be quickly and cheerfully obeyed and its accomplishment reported to the superior who gave it.

Devotion to duty and the ability to take orders are so important that the Navy has no place for the immature people who refuse to grow up, the self-seekers who do their best only when it is advantageous to them to do so, or the resentful, hard-headed, self-important individuals who cannot take orders.

PROFESSIONAL KNOWLEDGE

Of greatest importance, a person who thoroughly knows his job is far better qualified to lead than one who does not, but unfortunately, professional experience does not burst into full bloom merely because one wishes it so. Although he has the knowledge, the young officer usually steps aboard ship for the first time lacking in professional experience. Yet, he is placed in the position of a leader, given a job to do, and then seemingly left to his own devices. The job probably appears monumental to him, and the probability of his making a serious error which will expose his inexperience must be uppermost in his mind.

There are people on all sides, however, ready to assist him. The officer he relieves usually will use all possible available time to instruct him in his duties; outline the present program, pointing out what has and has not been done; discuss the inherent difficulties of the job; and briefly describe the abilities and personalities of his men. His senior officers always stand ready to give him a hand. While tolerant of his inexperience, they will insist that he do his duty and master his job as quickly as possible. His petty officers, too, will teach him if he shows

the inclination to benefit from their experience. If necessary, they will "carry him" (as the expression goes) as long as he tries to learn. The instructions may be subtle or frank, depending on the teacher. A few old hands may persist in their offers of aid even when rebuffed, but the majority will promptly lose the desire to help as soon as the officer loses the desire to learn. Therefore, it pays to be willing to listen to advice and suggestions. Even the newest seaman apprentice might be able to make a worthwhile contribution.

SELF-CONFIDENCE

As an officer's knowledge grows, self-confidence, a most important quality of leadership, should grow apace, for even a vast store of knowledge is meaningless without the confidence and ability to use it. Never, however, should a leader become so swelled with the importance of "superior" education, "vast" professional knowledge, or "noteworthy" accomplishments that he displays arrogance. It must be remembered that the ordinary enlisted person is not overly impressed with the number of academic degrees an officer holds; the main point is the officer's ability. Enlisted personnel can understand self-confidence in an officer who has proven himself, but arrogance in a new, untried ensign will be regarded as sheer buffoonery, and will be met with indifference and resentment. The officer's accompanying loss of respect will greatly diminish control over the personnel.

INITIATIVE AND INGENUITY

When confronted with the multitude of Navy rules, regulations, operating instructions, procedures, and the policies of the senior officers, a young ensign may assume that there is little room for personal initiative and ingenuity in the Navy today. Actually, the reverse is true. With new ships, new equipment, new weapons systems, and new concepts in naval warfare, there is a demand for officers with the imagination to realize their potentialities and the

skill and daring to develop their uses to their full extent.

While an officer must observe the limitations placed on actions by rules and regulations, there is scarcely a day which in passing does not present an opportunity to exercise initiative and ingenuity. At first, these opportunities may entail only small problems requiring but little of either ingenuity or initiative, but if one doesn't take advantage of the small chances offered, one will never gain enough self-confidence to tackle the bigger problems.

COURAGE

Courage, one of the more necessary characteristics of a leader, is that quality of the mind which enables one to meet danger and difficulties with firmness. It is that quality which enables us to overcome the fear of failure, injury, or death, which normally precedes any difficult or dangerous act we may attempt to perform. Further, courage is that quality which enables us to acknowledge our responsibilities and to carry them out regardless of consequences.

When speaking of courage, there is a tendency to divide it into two forms, moral and physical. Courage is a quality of the mind and, as such, may be developed. Like a muscle, it may be strengthened with use, and the more it is exercised the stronger it grows. Each time a person meets and tackles an obstacle, whether it be a particularly tough assignment or examination in school or a hard charging fullback on the football field, he strengthens his courage a bit more. While bringing an attempt to a successful conclusion might provide a great deal of satisfaction to the person, success itself is not completely essential to the development of the person's courage. In fact, a person who frequently is frustrated in his attempts and goes back to try again and again will probably develop his courage faster than one whose every endeavor is attended by success.

It may be difficult to convince a young person contemplating going into battle for the first time that anything in his background has

prepared him to overcome the fear he will be certain to experience. It is normal for him to doubt his ability to conduct himself with honor. However, military services from time immemorial have recognized this fact and have conditioned and trained their warriors under the most realistic conditions possible.

Our Navy is no exception. Before going into battle, each person is well acquainted with the smell of gunpowder, and has been trained and drilled at the battle station until his actions are almost automatic and second nature. Because of this training, the fast action involved, his sense of duty, the inspiration of his cause and his leaders, and the close proximity of others, even a timid person can muster enough courage to endure without faltering during the comparatively short, though terrible, periods of battle.

A courageous person is not necessarily fearless, but has learned to conquer his fear and concentrate on the mechanics of fighting.

ABILITY TO ORGANIZE AND MAKE DECISIONS

Essentially a junior officer's primary job is to coordinate the efforts of the personnel to achieve a common purpose. The normal day-to-day activity of the maintenance program of the peacetime Navy may not readily reflect this. The objective is more difficult to achieve when the goal is less easy to define. However, an overall view of the maintenance and training programs together shows how each minor accomplishment fits into the whole. An officer must be able to organize the personnel so that their labors and training will be utilized to the best possible advantage.

To organize effectively, the officer must have intimate knowledge of the skills and physical capabilities of the personnel. Without that knowledge he must rely on a senior petty officer to do the job. We must emphasize here that it is entirely proper and desirable for the officer to rely on the petty officers to the extent of their abilities. However, officers should never allow themselves to be reduced to the position

of an old-time midshipman—a messenger running between the wardroom and the forecabin.

While a young ensign cannot help but profit from careful observation of the methods of skilled organizers, he eventually must attempt some organization of his own. To do so, the officer must learn to make decisions; without the power of decision, he is useless as a leader. When personnel present a problem to an officer, they expect a clear-cut decision. Complicated questions or those clearly beyond the officer's authority to decide, he will wish to discuss with the immediate superior, but the lesser ones he should dispose of himself. The officer should never allow dread of making a mistake which might cause him to appear ridiculous to deter him from attempting to solve a problem. To be sure, he will make mistakes occasionally, but an honest mistake seldom invokes scorn or censure if all the factors involved in the problem were duly considered. From mistakes comes experience, and from experience comes wisdom.

PERSONAL EXAMPLE

Every young person has a strong personal need for examples to live by, at least until they have formulated their own principles. This need is expressed by following the example of someone admired—father, brother, teacher, officer, a great leader in history, or even someone with antisocial tendencies or habits. The young person will, in some way, attempt to attach to and be like the person admired. As long as a person is not disillusioned and as long as the need is felt, he will continue to emulate the hero.

A naval officer should have such total dignity and competence in all respects that he/she inspires the enlisted personnel to emulate and deeply respect the officer. There is no denying the value of setting a good personal example in daily life.

An officer cannot live by the rule of "don't do as I do—do as I say," without the risk of the personnel regarding him with suspicion or distaste. And, once that suspicion or distaste is established, the officer's use as a leader is greatly

diminished. On the other hand, if conduct is outstanding, it could very well inspire those about to follow the same pattern to the good of the entire Navy.

When we speak of conduct, we mean conduct ashore as well as aboard ship. A person in uniform is consciously or unconsciously watched by everyone around. In the minds of the observers, that person's actions are interpreted as typical of everyone who wears a similar uniform. It is imperative, therefore, that the officer do nothing to dishonor the uniform lest, in so doing, it dishonors the entire Navy.

An officer cannot expect personnel to follow the regulations laid down if the officer ignores them. Depending on the extent of the digressions, the officer may, for all practical purposes, completely lose control of the personnel. This may not be readily apparent to the officer at first, for a petty officer may keep the personnel in line. However, sooner or later the officer will realize that control is gone, but by that time it may be too late. In any event, to regain the respect of the personnel and to reestablish control over them will require extraordinary effort. "Rank has its privileges," but those privileges are not extended to cover deviations from accepted conduct. Rather, when it comes to conduct, it is "rank has its responsibilities" that must be stressed.

It might be helpful at this point to enumerate a number of facets considered by former Chief of Naval Operations George W. Anderson, Jr. to be involved in the makeup of a truly outstanding officer. Many have a direct relationship to effective leadership and thus are considered when officers are evaluated for reports of fitness:

Achievements. An outstanding officer produces results; many are industrious. The measure is the effectiveness of the work.

Ability to make decisions. This is closely allied to achievement. An officer must learn to evaluate his information, analyze the problem, and then integrate the two into a sound and incisive decision.

Breadth of vision. An effective officer brings to the profession a knowledge of all the

political, social, scientific, economic, and military factors that impinge upon the Navy.

Personal appearance. It is unbelievable how often this completely self-evident requirement is ignored in essential detail by otherwise promising officers.

Military bearing. A mature officer is a military person afloat or ashore, 24 hours a day, every day.

Mental alertness. Continual attention to detail coupled with an awareness of the big picture.

Ability to express himself. The greatest thinker or the smartest man finds himself bypassed if he is unable to communicate his ideas and decisions orally or in writing.

Contacts with people outside the service. An officer who allows himself and his interests to become completely ingrown into his profession will find that he has exhausted his potential growth.

Being a good shipmate. An officer must not lose sight of his relationships with others in the Navy. No one can go it alone; he can be effective only through others.

Imagination. A fitness report that states "This officer performs all ASSIGNED duties in an excellent manner" could easily describe an officer who has stopped growing. Imagination and its companion virtue, initiative, are vital.

Knowledge of the job. This is easily described but difficult to achieve. It implies complete mastery of the job plus a detailed knowledge of all its responsibilities, including those of subordinates.

Manner of performance. There are four general approaches to getting a job done. An officer can do it himself, drive others to do it, inspire others to do it, or combine the three in the best manner. The outstanding leader knows oneself, job, enlisted personnel, and the immediate situation; and knows how to combine these approaches to solve best the problem at hand.

Social grace. Knowing which fork to use is necessary, but the basic requirement is to be sincerely interested in the people one meets.

Sense of humor. This is really a matter of keeping everything in the proper perspective, of being able to distinguish between the important and the trivial.

Personal behavior. Suffice it to say that no Navy officer should be in a position of responsibility if the entire behavior pattern does not reflect absolute integrity and honor.

LEADERSHIP AND THE CODE OF CONDUCT

The "Code of Conduct for Members of the Armed Forces of the United States," usually referred to simply as the "Code of Conduct," was promulgated by President Eisenhower as Executive Order 10631 on 17 August 1955. It was distributed throughout the Navy by means of General Order No. 4.

In its written form the code grew out of the Korean War in which the conduct of a few American men cast a shadow over the great majority of their comrades who had acquitted themselves honorably and with distinction. Although young in years, the code is timeless in the sense that, with few exceptions, American men-at-arms have honored its provisions in all the wars this country has fought.

In Korea, the Chinese Communists added a new dimension to warfare by extending it to prisoner-of-war camps. In addition to the usual hardships imposed on prisoners, the moment an American POW fell into Communist hands, his captors launched an assault to progressively weaken his physical and moral strength. Originally called "brainwashing," persistent interrogation was aimed at (1) undermining the Americans' loyalty to their country and faith in the democratic way of life, and (2) conditioning them to Communism. These were attempted in any number of ways—threats, torture, pretended kindness, bribes, harassment, fear.

The Communists' goal was achieved if they could induce a prisoner to sign a spurious statement designed to destroy the image of the United States in the eyes of the world; if they could obtain his cooperation to the extent of broadcasting propaganda messages to the "folks

back home;" or perhaps only get him to act as an informer on other prisoners. The Americans expected only hardship and brutality. They didn't know how to cope with this sort of treatment—this new type of warfare that revolved around personal descriptions such as "progressive" (one who cooperated with his captors) and "reactionary" (one who did not) and, perhaps inevitably, a few of those captured did, willingly or unknowingly, cooperate with the enemy.

The Code of Conduct was developed with the idea that henceforth our fighting forces would have available to them specific guidelines for behavior in the event of any future conflict. Prior to its issuance, the Armed Forces had never had a clearly defined wartime code of conduct.

Following are the articles comprising the United States fighting man's code:

Article I

I am an American fighting man. I serve in the forces which guard my country and our way of life. I am prepared to give my life in their defense.

Article II

I will never surrender of my own free will. If in command I will never surrender my men while they still have the means to resist.

Article III

If I am captured I will continue to resist by all means available. I will make every effort to escape and aid others to escape. I will accept neither parole nor special favors from the enemy.

Article IV

If I become a prisoner of war, I will keep faith with my fellow prisoners. I will give no information nor take part in any action which might be harmful to my comrades. If I am senior, I will take

command. If not, I will obey the lawful orders of those appointed over me and will back them up in every way.

Article V

When questioned, should I become a prisoner of war, I am bound to give only name, rank, service number and date of birth. I will evade answering further questions to the utmost of my ability. I will make no oral or written statements disloyal to my country and its allies or harmful to their cause.

Article VI

I will never forget that I am an American fighting man, responsible for my actions, and dedicated to the principles which made my country free. I will trust in the United States of America.

Articles I and VI comprise a sort of creed, affirming dedication to American national security and devotion to American principles. The keynote of Article II, resistance, prescribes behavior in battle. Remembering the lessons learned in Korea, the remaining articles (bulk of the code) explain what is expected of an American fighting man who has the misfortune to be captured by an enemy. Although relatively few men become prisoners of war, all those who go into combat must do so fully prepared for the possibility of capture. For men who are taken prisoner, Articles III, IV, and V are of vital importance; they comprise one weapon (knowledge) a man takes into captivity that the enemy cannot strip from him.

Articles III, IV, and V are directly related to the Geneva Convention of 1949 pertaining to the treatment of prisoners of war. The Geneva Conventions formulate internationally recognized agreements governing participants in war. Their history goes back to the Civil War, when it became generally apparent that even prisoners of war were people and thus deserved a better fate than being tortured, executed, or enslaved.

There have been a number of international convention conferences, the latest of which resulted in the "Geneva Conventions for the Protection of War Victims," referred to as the "Four Geneva Conventions of 1949." Conventions I and II concern themselves with the care and treatment of wounded and sick armed forces personnel in the field and at sea, respectively. Convention III relates to prisoners of war; and the last covers the protection of civilians in time of war. The 1949 conventions are based on experiences gathered in World War II and a realization that more stringent provisions for the protection of war victims were necessary than existed under previously written conventions.

The conventions are extremely complex, and for those interested, full texts are contained in NWIP 10-2, Law of Naval Warfare, appendixes C, D, E, and F. Very briefly, Convention III, which is our area of concern, outlines POW duties and rights. The former covers legal status as a prisoner, laws by which bound, rules of military courtesy while a prisoner, and work rules. The POWs' rights encompass rules of interrogation; selection of a POW representative to speak for the body of POWs before military authorities, the International Committee of the Red Cross, and others; escapes and attempted escapes; food and quarters; mail; medical treatment; and religious worship.

The Geneva Conventions of 1949, embodying as they do major rules of warfare, are prime sources of codified international law ratified or adhered to by all major nations of the world. As with many laws and all treaties, however, compliance often is difficult to secure. North Vietnam, for example, acceded to the conventions in 1957, but had no scruples about violating Convention III. To put a legal face on the matter, Hanoi simply refused to admit, for instance, that they held any pilots as prisoners of war—aviators are "air pirates" and therefore criminals.

In a POW compound, strong leadership is essential to discipline because without it survival may be impossible. Even in the face of defeatism, the seemingly unimportant military

NAVAL ORIENTATION

requirements of personal hygiene, camp sanitation, and care of the sick are imperative. Officers, noncommissioned officers, and petty officers continue to carry out their responsibilities and exercise their authority after capture; those who are senior assume command according to grade or rate without regard to service.

As a prisoner, bear in mind at all times that unity and discipline are vitally needed in a POW camp. If you are the senior officer or man but cannot assume command openly, do it covertly.

This responsibility for camp leadership cannot be evaded.

SUGGESTED READING:

The Armed Forces Officer, NAVEDTRA 46905

The U.S. Navy Manual for Leadership Support, NAVPERS 15934 series

The U.S. Fighting Man's Code, NAVPERS 92638A

CHAPTER 9

DEPARTMENT OF THE NAVY

At the end of World War II there were two military (executive) departments in the United States: Department of the Navy, including naval aviation and the U.S. Marine Corps; and the Department of War, which included Army Air Forces. Each of the departments was headed by a secretary who was a member of the President's Cabinet.

In 1947, Congress passed the National Security Act which created the National Military Establishment (NME) to be headed by a Secretary of Defense; established a Department of the Air Force as a third military (executive) department; changed the title of the Department of War to Department of the Army; and provided for transfer of air force functions from the Department of the Army to the Department of the Air Force. It further provided for establishment of unified commands in strategic areas. In 1949, amendments to the Act established the Department of Defense as an executive department, with the Departments of the Army, Navy, and Air Force as military departments therein, to replace the NME. Secretaries of the military departments were replaced as cabinet members by the Secretary of Defense. These amendments also created the position of Chairman of the Joint Chiefs of Staff. (See figure 9-1.)

The Department of Defense was created as part of a comprehensive program for the future security of the United States through the establishment of integrated policies and procedures for the departments, agencies, and functions of the Government relating to the national security. In enacting such legislation, it was the intent of Congress to—

1. Provide a Department of Defense which would include the departments of the Army,

Navy (including naval aviation and the United States Marine Corps), and Air Force under the direction, authority, and control of the Secretary of Defense;

2. Provide that each military department would be separately organized under its own Secretary and function under the direction, authority, and control of the Secretary of Defense;

3. Provide for their unified direction under civilian control of the Secretary of Defense but not to merge the departments or services;

4. Provide for the establishment of unified or specified combatant commands, and a clear and direct line of command to such commands;

5. Eliminate unnecessary duplication in the Department of Defense, and particularly in the field of research and engineering by vesting its overall direction and control in the Secretary of Defense;

6. Provide more effective, efficient, and economical administration in the Department of Defense; and

7. Provide for the unified strategic direction of the combatant forces, for their operation under unified command, and for their integration into an efficient team of land, naval, and air forces.

ORGANIZATION OF THE DEPARTMENT OF DEFENSE

The Department of Defense maintains and employs armed forces to—

1. Support and defend the Constitution of the United States against all enemies, foreign and domestic;

2. Ensure, by timely and effective military action, the security of the United States, its possessions, and areas vital to its interest;

3. Uphold and advance the national policies and interests of the United States; and

4. Safeguard the internal security of the United States.

The Department of Defense includes:

1. The Office of the Secretary of Defense;

2. The Joint Chiefs of Staff and the Joint Staff;

3. The three military departments and the military services within those departments;

4. Unified and specified commands; and

5. Other agencies the Secretary of Defense may establish to meet specific requirements.

SECRETARY OF DEFENSE

The Secretary of Defense is the principal assistant to the President in all matters relating to the Department of Defense. All functions in the Department are performed under his direction, authority, and control.

The Deputy Secretary of Defense performs such duties and exercises such powers as the Secretary of Defense prescribes. He acts for, and exercises the powers of, the Secretary when the latter is absent or disabled.

The Secretary and Deputy Secretary are appointed from civilian life by the President with the advice and consent of the Senate. They may not have been Regular commissioned officers of the Armed Forces within 10 years preceding their appointments.

The Office of the Secretary of Defense (OSD), which provides immediate staff assistance and advice to the Secretary, includes the offices of the Director of Defense Research and Engineering, a number of Assistant Secretaries of Defense, the General Counsel of the Department of Defense (DOD), and other staff offices the Secretary may establish to assist him in carrying out his duties and responsibilities.

Duties of the Director of Defense Research and Engineering include:

1. Acting as principal advisor to Secretary of Defense (SECDEF) on scientific and technical matters,

2. Supervising all DOD research and engineering activities, and

3. Directing and controlling research and engineering activities that the Secretary deems to require centralized management.

JOINT CHIEFS OF STAFF

The Joint Chiefs of Staff (JCS) consist of a chairman who may be of any service, and who is appointed by the President with the advice and consent of the Senate; Chief of Staff, U.S. Army; Chief of Naval Operations; and Chief of Staff, U.S. Air Force. The Commandant of the Marine Corps attends meetings regularly and has coequal status with other members of the JCS on matters that directly concern the Marine Corps. The JCS, supported by the Joint Staff, constitute the immediate military staff of the Secretary of Defense. In addition, the Joint Chiefs of Staff are the principal military advisors to the President and the National Security Council.

Subject to the authority and direction of the President and the Secretary of Defense, the Joint Chiefs of Staff, in addition to such other duties as the President and SECDEF may direct—

1. Prepare strategic plans and provide for the strategic direction of the Armed Forces, including the direction of operations conducted by commanders of unified and specified commands.

2. Prepare integrated plans for military mobilization and integrated logistic plans.

3. Recommend to the Secretary of Defense the establishment and force structure of unified and specified commands.

4. Review the plans and programs of commanders of unified and specified commands.

5. Review major personnel, material, and logistic requirements of the Armed Forces in relation to strategic and logistic plans.
6. Establish doctrines for unified operations and training and for coordination of the military education of members of the Armed Forces.
7. Provide the Secretary of Defense with statements of military requirements and strategic guidance for use in the development of budgets, foreign military aid programs, industrial mobilization plans, and programs of scientific research and development.
8. Recommend to the Secretary of Defense the assignment of primary responsibility for any function of the Armed Forces requiring such determination, and the transfer, reassignment, abolition, or consolidation of such functions.
9. Provide United States representation on the Military Staff Committee of the United Nations; and when authorized on other military staffs, boards, councils, and missions.

UNIFIED AND SPECIFIED COMMANDS

Unified and specified commands (figure 9-1) are established under the Joint Chiefs of Staff to exercise command over all forces in a specific area of the world or to otherwise carry out a broad, continuing mission. The chain of command leads from the President to the Secretary of Defense and through the Joint Chiefs of Staff to the commanders of unified or specified commands.

The main distinction between a unified and specified command is that the former is composed of two or more services while the latter normally consists of forces of only one service.

Periodically the Joint Chiefs of Staff must decide which service will exercise command responsibility in a given area of the world. They then select a man from the chosen service to represent them as unified commander, the appointment being confirmed by the Secretary of Defense and the President. The unified commander has operational control over all forces in his area; service commanders are

referred to as his component commanders. In the Pacific, for example, the JCS unified commander has the title of Commander in Chief, Pacific (CINCPAC). His component commanders are the Commander in Chief, U.S. Pacific Fleet (CINCPACFLT) and the area Army (USARPAC), Air Force (PACAF), and Marine Corps (FMFPAC) commanders. Component commanders retain direct control over their own forces, but are responsible to CINCPAC for the readiness of those forces.

A specified command is responsible for the performance of a specific mission. The Strategic Air Command, currently (1976) the only specified command, is responsible for preparing strategic air forces for combat and conducting strategic air operations.

DEFENSE AGENCIES

The directors of the Defense Nuclear Agency, Defense Communications Agency, Defense Intelligence Agency, and the Defense Mapping Agency are responsible to the Joint Chiefs of Staff for the operations and efficiency of their agencies. The Directors of the Defense Supply Agency, Defense Contract Audit Agency, Defense Civil Preparedness Agency, Defense Security Assistance Agency, and the Defense Advanced Research Projects Agency are responsible directly to the Secretary of Defense.

MILITARY DEPARTMENTS

The chain of command for purposes other than the operational direction of unified and specified command runs from the President to the Secretary of Defense to the secretaries of the military departments.

The duties of the military departments under their respective secretaries are to prepare forces and establish reserves of equipment and personnel equipped and trained for employment to meet the needs of war or an emergency; to organize, train and equip forces for assignment to unified or specified commands; to prepare and submit to the Secretary of Defense budgets for their respective departments; conduct research; develop tactics, techniques, and

weapons; and to assist each other in the accomplishment of their respective functions, including the provisions of personnel, intelligence, training, facilities, equipment, supplies, and services.

The Army is responsible primarily for the conduct of prompt and sustained combat operations on land.

The Air Force is responsible mainly for prompt and sustained offensive and defensive aerospace operations.

The purpose of the remainder of this chapter is to provide a clear picture of the function of the Navy within the Department of Defense.

COMPOSITION OF THE DEPARTMENT OF THE NAVY

The Department of the Navy (DON) includes the entire naval component of the Department of Defense. It is composed of the Navy Department (the executive part of the DON, located at the seat of Government); Headquarters, United States Marine Corps; all operating forces, including naval aviation, of the Navy and Marine Corps, and the Reserve components of the operating forces; and all shore (field) activities, headquarters, forces, bases, installations, and functions under the control or supervision of the Secretary of the Navy (SECNAV). The Department (figure 9-2) includes the U.S. Coast Guard when it is operating as a service in the Navy (in time of war or when the President so directs).

The fundamental objectives of the Department of the Navy are to (1) organize, train, equip, prepare, and maintain the readiness of the Navy and Marine Corps forces for the performance of military missions as directed by the President or the Secretary of Defense, and (2) support Navy and Marine Corps forces, as well as the forces of other military departments, as directed by the Secretary of Defense, that are assigned to unified or specified commands. As here used, support includes administrative, personnel, material, and fiscal support, and technological support through research and development.

EXECUTIVE ADMINISTRATION OF THE DEPARTMENT OF THE NAVY

Members of the executive administration of the DON include the—

1. Secretary of the Navy,
2. His Civilian Executive Assistants, and
3. Staff assistants to the Secretary.
4. Chief of Naval Operations.
5. Chief of Naval Material. \downarrow *
6. Chief of the Bureau of Medicine and Surgery. \downarrow *
7. Chief of Naval Personnel. \downarrow *
8. Commandant of the Marine Corps.
9. Judge Advocate General of the Navy.
10. Chief of Naval Research.

Secretary of the Navy

The Secretary of the Navy is the head of the Department of the Navy. Under the direction, authority, and control of the Secretary of Defense, he is responsible for the policies and control of the DON, including its organization, administration, operation, and efficiency.

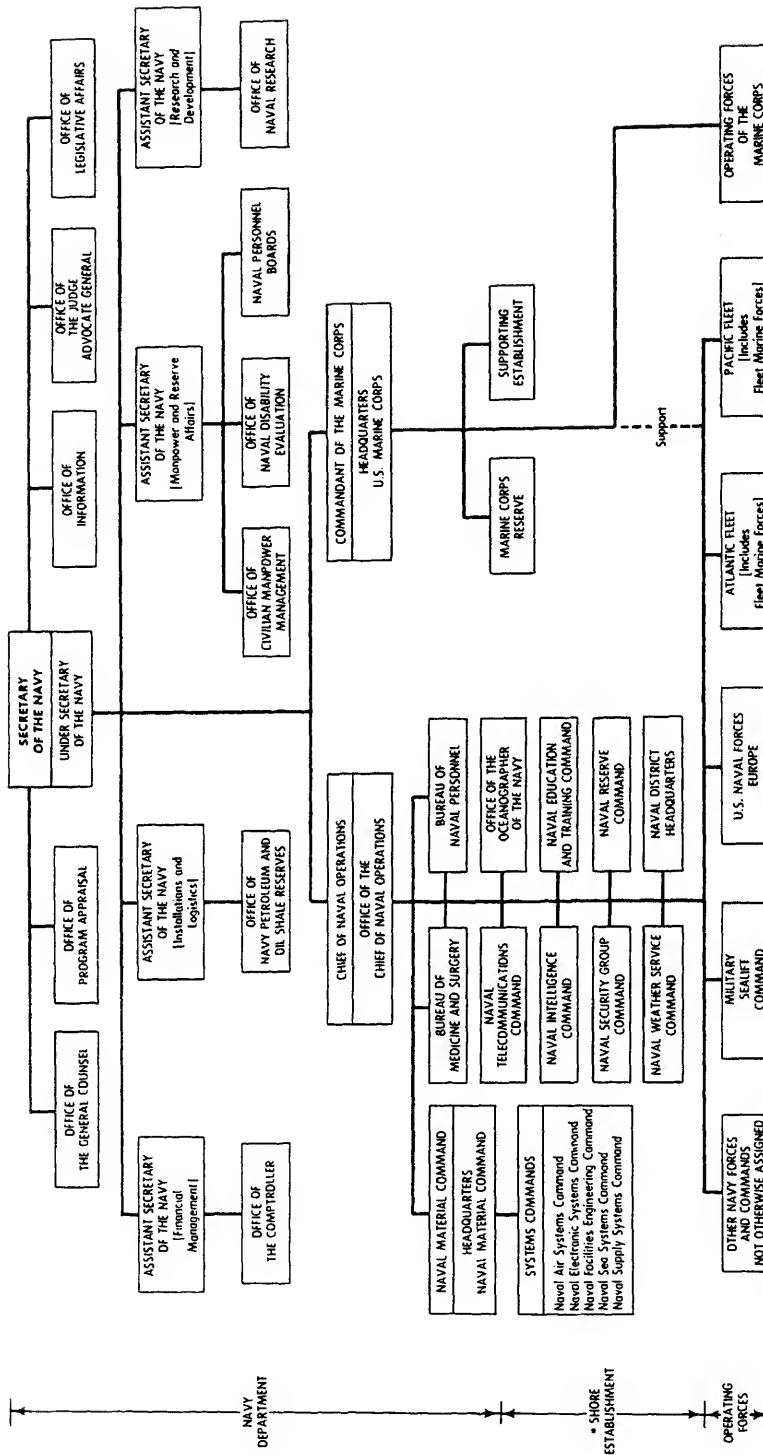
Civilian Executive Assistants to SECNAV

The Civilian Executive Assistants to the Secretary are his principal policy advisors and assistants on the administration of the affairs of the Department as a whole. Within his assigned area, each Civilian Executive Assistant is authorized to act for SECNAV.

UNDER SECRETARY OF THE NAVY.—
The Under Secretary of the Navy is the deputy and principal assistant to the Secretary of the Navy. He acts with full authority of the Secretary in the general management of the Department of the Navy. He is responsible for transportation matters and for supervision of the following boards and offices:

1. Office of Program Appraisal;
2. Office of General Counsel;

* \downarrow Under command of CNO



* Also includes other designated shore activities, not shown on the chart, which are under the command or supervision of many of the organizations depicted

Figure 9-2.—Department of the Navy.

3. Office of Information;
4. Office of the Judge Advocate General;
and
5. Office of Legislative Affairs.

ASSISTANT SECRETARY OF THE NAVY (FINANCIAL MANAGEMENT).—The Assistant Secretary of the Navy (Financial Management) is Comptroller of the Navy. He is responsible for all matters related to financial management of the DON, including budgeting, accounting, disbursing, financing, progress and statistical reporting, and auditing. He supervises the Office of the Comptroller of the Navy, the Office of Special Assistant to the Secretary of the Navy, and the Office of Management Information.

ASSISTANT SECRETARY OF THE NAVY (INSTALLATIONS AND LOGISTICS).—The Assistant Secretary of the Navy (Installations and Logistics) is responsible for all matters related to the procurement, production, supply, distribution, alteration, maintenance, and disposal of material; the acquisition, construction, utilization, improvement, alteration, maintenance, and disposal of real estate and facilities, including capital equipment, utilities, housing, and public quarters; printing and publications; labor relations with respect to Navy contractors; industrial security; and the Mutual Defense Assistance Program as related to the supplying of material. He supervises the Office of Naval Petroleum and Oil Shale Reserves, with full and final authority to take action as Acting SECNAV under all statutes and regulations relating to petroleum and oil shale reserves.

ASSISTANT SECRETARY OF THE NAVY (MANPOWER AND RESERVE AFFAIRS).—The Assistant Secretary of the Navy (Manpower and Reserve Affairs) is responsible for all matters related to manpower and Reserve component affairs of the Department, including policy and administration applicable to both military (active and Reserve) and civilian personnel. He supervises the Office of Civilian Manpower Management and the Naval Personnel Boards (Naval Examining Board, Physical Disability Review Board, Naval

Clemency and Parole Board, and the Navy Discharge Review Board).

ASSISTANT SECRETARY OF THE NAVY (RESEARCH AND DEVELOPMENT).—The Assistant Secretary of the Navy (Research and Development) is responsible for matters related to research, development, engineering, test, and evaluation efforts within the Department of the Navy; and for oceanography, ocean engineering and closely related matters. He is Chairman of the Navy Research and Development Committee and is responsible for supervision of the Office of Naval Research.

Staff Assistants to the Secretary

Staff assistants to the Secretary of the Navy which include, as a few examples, the Administrative Officer, Navy Department; Chief of Legislative Affairs; Director, Office of Management Information; and Director, Office of Civilian Manpower Management; assist the Secretary, or one or more of his Civilian Executive Assistants, in the administration of the department.

Each staff assistant commands/supervises all functions and activities internal to his office and assigned shore activities, if any. Specific duties of individual assistants are as provided by law or as assigned by the Secretary.

Chief of Naval Operations

The Chief of Naval Operations (CNO) is the senior military officer of the Department of the Navy. He takes precedence above all other officers of the naval service except one who may be serving as Chairman of the Joint Chiefs of Staff. He is the principal naval adviser to the President and the Secretary of the Navy on the conduct of war, and the principal naval adviser and naval executive to the Secretary on the conduct of the activities of the Department of the Navy. The CNO is the Navy member of the Joint Chiefs of Staff; he is responsible for keeping SECNAV fully informed on matters

considered or acted upon by the JCS. In this capacity, he is responsible under the President and SECDEF for duties external to the Department of the Navy as prescribed by law.

Internal to the administration of the Department of the Navy, CNO commands (1) the Operating Forces of the Navy, and (2) at the Navy Department level, the Naval Material Command, the Bureau of Naval Personnel, the Bureau of Medicine and Surgery, and assigned shore activities. Except for those areas in which responsibility rests with the Commandant of the Marine Corps, CNO exercises overall authority throughout the Department of the Navy in matters essential to naval military administration, such as security, intelligence, discipline, communications, and matters related to the customs and traditions of the naval service.

With respect to the Operating Forces of the Navy, the Chief of Naval Operations has the following specific responsibilities:

1. To organize, train, prepare, and maintain the readiness of Navy forces, including those to be assigned to unified or specified combatant commands, for the performance of military missions as directed by the President or SECDEF. This includes the responsibility to make or initiate any special provisions that may be required within the Department of the Navy for the administration of naval forces that are assigned to such combatant commands. Inherently, this responsibility includes determination of the training required to prepare Navy personnel, including Reserve personnel, for combat. Naval forces, when assigned, are under the full operational command of the commander of the unified or specified combatant command to which they are assigned.

2. To plan for and determine the material support needs of the Operating Forces of the Navy (less Fleet Marine Forces and other assigned Marine Corps forces) including equipment, weapons or weapons systems, materials, supplies, facilities, maintenance, and supporting services.

3. To plan for and determine the present and future needs, both quantitative and

qualitative, for personnel (including Reserve personnel) of the Navy. This includes responsibility for leadership in maintaining (1) a high degree of competence among officers and enlisted personnel through education, training, and equal opportunities for advancement, and (2) the morale and motivation of Navy personnel and the prestige of a Navy career.

4. To plan for and determine the needs for the care of the health of the personnel of the Navy and their dependents.

5. To direct the organization, administration, training, and supply of the Naval Reserve.

CHIEF OF NAVAL MATERIAL.—The Chief of Naval Material, under CNO, commands all activities of the Naval Material Command (NMC). He is responsible to the CNO for providing the material support of the Operating Forces, and to the Commandant of the Marine Corps for providing certain material support for the Marine Corps.

The NMC includes the Headquarters, Naval Material Command and five principal subordinate commands, each of which comprises a headquarters and shore activities as assigned:

1. Naval Air Systems Command,
2. Naval Electronic Systems Command,
3. Naval Facilities Engineering Command,
4. Naval Sea Systems Command, and
5. Naval Supply Systems Command.

The Naval Air Systems Command (NAVAIR) is responsible for Navy/Marine Corps aircraft and airborne weapon systems and other aviation-related equipment; and the systems integration of aircraft weapon systems.

General areas of responsibility for the Naval Electronic Systems Command (NAVELEX) include shore-based electronic systems and certain common-use airborne and shipboard electronic equipment, such as navigation, communications, and general test equipment. NAVELEX serves as a central technical authority on electronic standards, technology, and compatibility.

The Naval Facilities Engineering Command (NAVFAC) is responsible for administration of the Navy military construction program, facilities planning, facility maintenance and utility operations, real property inventory management, and natural resources and pollution control programs. It performs material support functions related to public works, floating cranes, pontoons and moorings, ocean structures, and to transportation, construction, and weight-handling equipment. The Command also provides engineering and technical services in nuclear shore power and radioisotope power devices.

The Naval Sea Systems Command (NAVSEA) is responsible for whole ships and craft including shipboard weapons systems, their components, and expendable ordnance. In addition, NAVSEASYSKOM's responsibility extends to the coordination of system integration of all shipboard subsystems, procurement, technical guidance, and supervision of operations related to salvage of stranded and sunken ships and craft. NAVSEASYSKOM is the central technical authority for ship and ordnance safety including nuclear power and explosives.

The Naval Supply Systems Command (NAVSUP) is responsible for supply management policies and methods; administration of the Navy Supply System, publications and printing, the resale program, the Navy Stock Fund, the field purchasing service, and transportation of Navy property; and material functions related to materials handling equipment, food service, and special clothing.

CHIEF OF THE BUREAU OF MEDICINE AND SURGERY.—Under the Chief of Naval Operations, the Chief of the Bureau of Medicine and Surgery commands that bureau and its assigned shore activities. He is responsible for safeguarding the health of those in the Navy; providing care and treatment for sick and injured members of the naval service (including the Marine Corps) and their dependents; operating training programs for all categories of Medical Department personnel; maintaining a continuing program of medical and dental research; and maintaining programs for the prevention and control of diseases, injuries, and

occupational illnesses of civilian employees of the Navy.

CHIEF OF NAVAL PERSONNEL.—Under CNO, the Chief of Naval Personnel commands the Bureau of Naval Personnel and assigned shore activities. He is responsible for the procurement, promotion, distribution, discipline, retirement, religious guidance, and the welfare and morale of officer and enlisted personnel of the Navy, including the Naval Reserve and the Naval Reserve Officer Training Corps; and for regulations concerning uniforms, naval ceremonies, and naval etiquette as delegated by the Secretary of the Navy.

Chief of Naval Education and Training

Under CNO, the Chief of Naval Education and Training (CNET) commands the Naval Education and Training Command. He is the manager of the funds, the facilities, the curricula, and the support of all training, except certain aspects of fleet training and training assigned to the Bureau of Medicine and Surgery. He is responsible for all surface, subsurface and aviation technical training. Under him are the Chief of Naval Technical Training, the Chief of Naval Air Training, and the Chief of Naval Education and Training Support.

Commandant of the Marine Corps

Functions and responsibilities of the Commandant of the U.S. Marine Corps are discussed in chapter 11.

Staff Offices of SECNAV

OFFICE OF THE COMPTROLLER.—Under the Comptroller, who is Assistant Secretary of the Navy (Financial Management), the Deputy Comptroller of the Navy commands the Office of the Comptroller. This Office formulates principles and policies for financial management in the Navy and prescribes

procedures in the areas of budget, accounting, audit, and progress and statistical reporting throughout the DON to the end that their use will result in meeting the operating and planning requirements of management with efficiency and economy.

OFFICE OF THE JUDGE ADVOCATE GENERAL.—The Office of the Judge Advocate General (JAG) has cognizance of all phases of law, other than business and commercial law, incident to operation of the Department of the Navy. The major areas of legal activity are military law, international law, admiralty law, tort claims, administrative law, and civil law. The Judge Advocate General is principal advisor to CNO and the Chief of Naval Personnel for the legal aspects of military personnel matters.

OFFICE OF NAVAL RESEARCH.—The Office of Naval Research (ONR) is charged with encouraging, promoting, planning, initiating, and coordinating naval research, and conducting naval research in augmentation of and in conjunction with the research and development conducted by bureaus, offices, and other agencies of the DON. The Chief of Naval Research reports to the Assistant Secretary of the Navy (Research and Development). He is Assistant Oceanographer of the Navy for Ocean Science matters.

OFFICE OF INFORMATION.—The mission of the Office of Information is to initiate, develop, collect, and disseminate to the public and the naval service information concerning, among other things, the Navy as an instrument of national policy and security, and activities of the Navy as compatible with national security. The Office ensures that appropriate information concerning policies and programs of the Navy Department is available to naval personnel.

OTHER STAFF OFFICES.—In addition to those described above, staff offices of SECNAV include the Office of General Counsel, Office of Civilian Manpower Management, Office of Legislative Affairs, Office of Naval Petroleum and Oil Shale Reserves, and Office of Program Appraisal.

OPERATING FORCES OF THE NAVY

The Chief of Naval Operations is responsible to SECNAV for the command, use, and administration of the Operating Forces of the Navy. With respect to Navy and Marine Corps forces assigned to unified and specified commands, this responsibility is discharged in a manner consistent with the full operational command vested in those commanders.

The Operating Forces are comprised of the several fleets, seagoing forces, the Military Sealift Command, district forces, the Coast Guard (when operating as a service in the Navy), Fleet Marine Forces (discussed in chapter 11) and other assigned Marine Corps forces, and such other forces and Navy shore activities and commands as are assigned by SECNAV.

Major Commands

Major commands afloat, operating directly under the command of CNO, are shown in figure 9-3.

The composition of both Pacific and Atlantic Fleets includes ships and craft classified and organized into commands by types, the titles of which are self-explanatory:

- Training commands,
- Surface forces,
- Fleet Marine forces,
- Naval Air forces,
- Submarine Forces.

Type commanders report to the Commander in Chief U.S. Pacific Fleet (CINCPACFLT) or Commander in Chief, U.S. Atlantic Fleet (CINCLANTFLT), as appropriate.

The Commander in Chief, Pacific Fleet has under his command the 3rd and 7th Fleets; the Commander in Chief, Atlantic Fleet has the 2nd Fleet; and the Commander in Chief, U.S. Naval Forces, Europe has the 6th Fleet. Ships that make up the operational (numbered) fleets are provided by type commanders. Thus, an aircraft carrier might be under the operational control of Commander, 3rd Fleet but under the administrative command of Commander Naval Air Force Pacific. Fleet Marine forces, which are

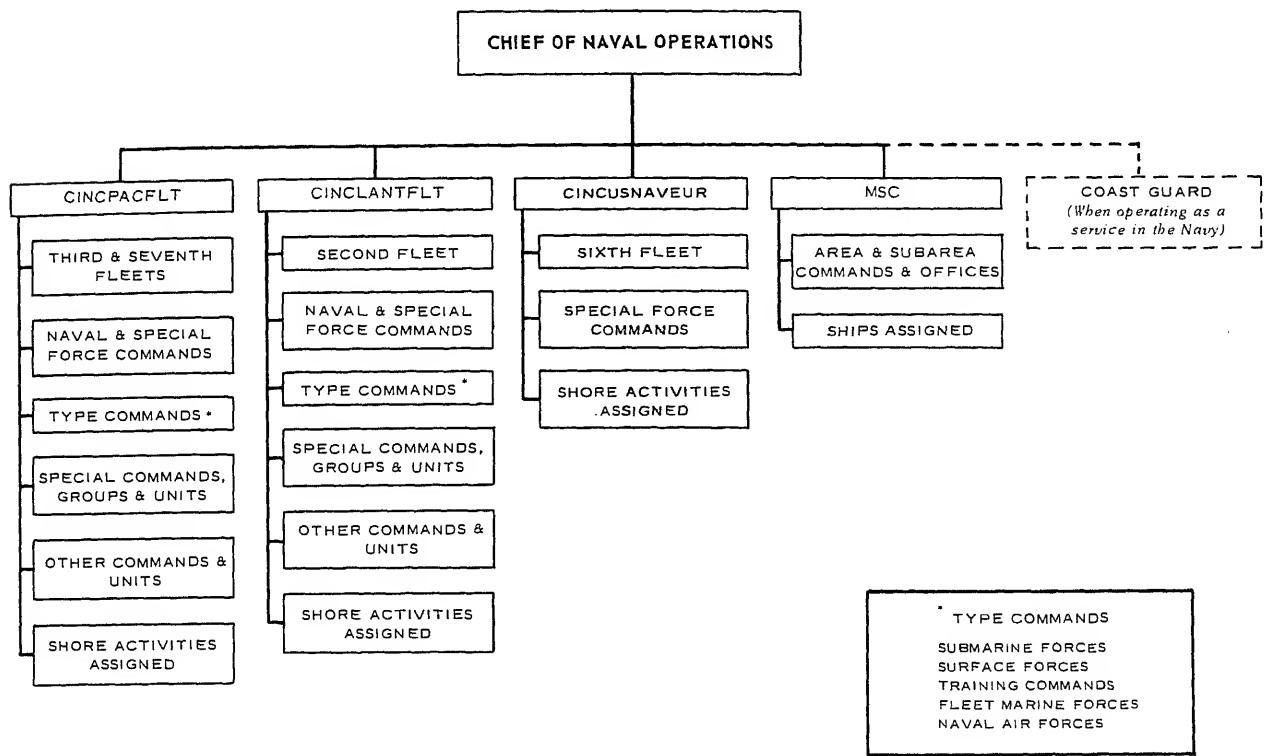


Figure 9-3.—Operating forces of the Navy.

30.5

type commands under the administrative control of the Commandant of the Marine Corps, bear the same relation to the respective commanders in chief as do other type commands.

The Commander in Chief, U.S. Naval Forces, Europe (CINCUSNAVEUR) is the naval component commander of the unified command under U.S. Commander in Chief, Europe.

The Military Sealift Command, operated by the Navy for the use of all the armed services, consists of civil service-manned ships and commercial ships employed on a contract basis. The ships are no longer utilized to transport servicemen and their dependents.

The primary mission of MSC is to provide immediate sealift capability in an emergency. MSC also operates fleet support ships and ships in support of scientific projects and other programs for agencies and departments of the United States.

Shore Activities Assigned to Operating Forces

A shore activity (discussed in the next section) may be placed under the command of the Operating Forces if it is outside the boundaries of a naval district or if it provides support only to units of the Operating Forces. There are numerous activities so assigned, including naval air facilities, communication facilities, naval and submarine bases, ship repair facilities, and supply depots.

SHORE ACTIVITIES

Although a number of shore activities exist at the Navy Department level (e.g., systems commands under CNM: Naval Weather Service Command under CNO), this discussion concerns itself mainly with those shore activities which have the primary function of supplying,

maintaining, and supporting the Operating Forces through the delivery or furnishing of material, services, and personnel.

A representative list of such activities includes naval district headquarters, air facilities and stations, Reserve training units, ammunition depots, communication stations, fleet intelligence centers, fuel depots, naval hospitals, laboratories, medical centers, recruiting stations, shipyards, supply centers, and schools. Generally, these activities form a complex of installations engaged in a wide variety of functions including military operations such as flight training, service functions such as movement and storage of supplies, and industrial production such as ship construction and repair.

Many shore activities are distributed at strategic points along our coastal regions and overseas where they can most directly serve the needs of the Operating Forces. Activities for which nearness to the forces afloat is not essential or practical, however, are distributed at vantage points within the United States. Among the latter are finance offices, recruiting stations, research and development activities, training centers, and others.

Command of a Shore Activity

Authority to approve the establishment or disestablishment of all shore activities rests with SECNAV. He approves proposed missions and assigns responsibility for command to the Chief of Naval Operations, Commandant of the Marine Corps, Chief of Naval Research, Judge Advocate General, or one of SECNAV's Staff Assistants. Those officials may delegate such command (or supervision, as appropriate) to other officials in their chain of command or supervision.

The exercise of command over a shore activity encompasses overall authority, direction, control, and coordination necessary to carry out the assigned mission and responsibility for the operating efficiency of the activity. It includes administrative, personnel, and material support; guidance and assistance in such matters as organization, procedures, budgeting,

accounting, and staffing; and utilization of personnel, funds, material, and facilities.

The assignment of command is determined by the degree to which the mission of a shore activity is related to provision of operational or training support to combatant forces as distinguished from other types of support. Thus, CNO has ultimate command of such activities as systems commands, bureaus, type commands, naval stations, naval air stations, naval bases, and naval districts. On the other hand, as a very limited example, the Chief of Naval Material and other chiefs are delegated command responsibilities as follows:

<u>Activity</u>	<u>Command</u>
Ordnance laboratory	CNM
Missile facility	CNM
Hospital	Chief, BUMED
Medical center	Chief, BUMED
Recruiting station	Chief of Naval Personnel
Service school command	Chief of Naval Education and Training

The Commandant of the Marine Corps has command responsibility for most Marine shore activities such as recruiting stations and recruit depots, Marine supply installations, and USMC Reserve training centers.

Area Coordination

To ensure that the total efforts of shore activities afford adequate support to the combatant forces and are adequately coordinated among themselves, the Chief of Naval Operations is responsible for worldwide coordination of all shore activities. This overall direction is exercised by designated area coordinators, commanders subordinate to CNO, who direct the efforts of shore activities in their areas to the extent necessary to assure that the support rendered is effective and continuous.

An area coordinator has no authoritative direction over specific field activities because responsibility for internal affairs is assigned to

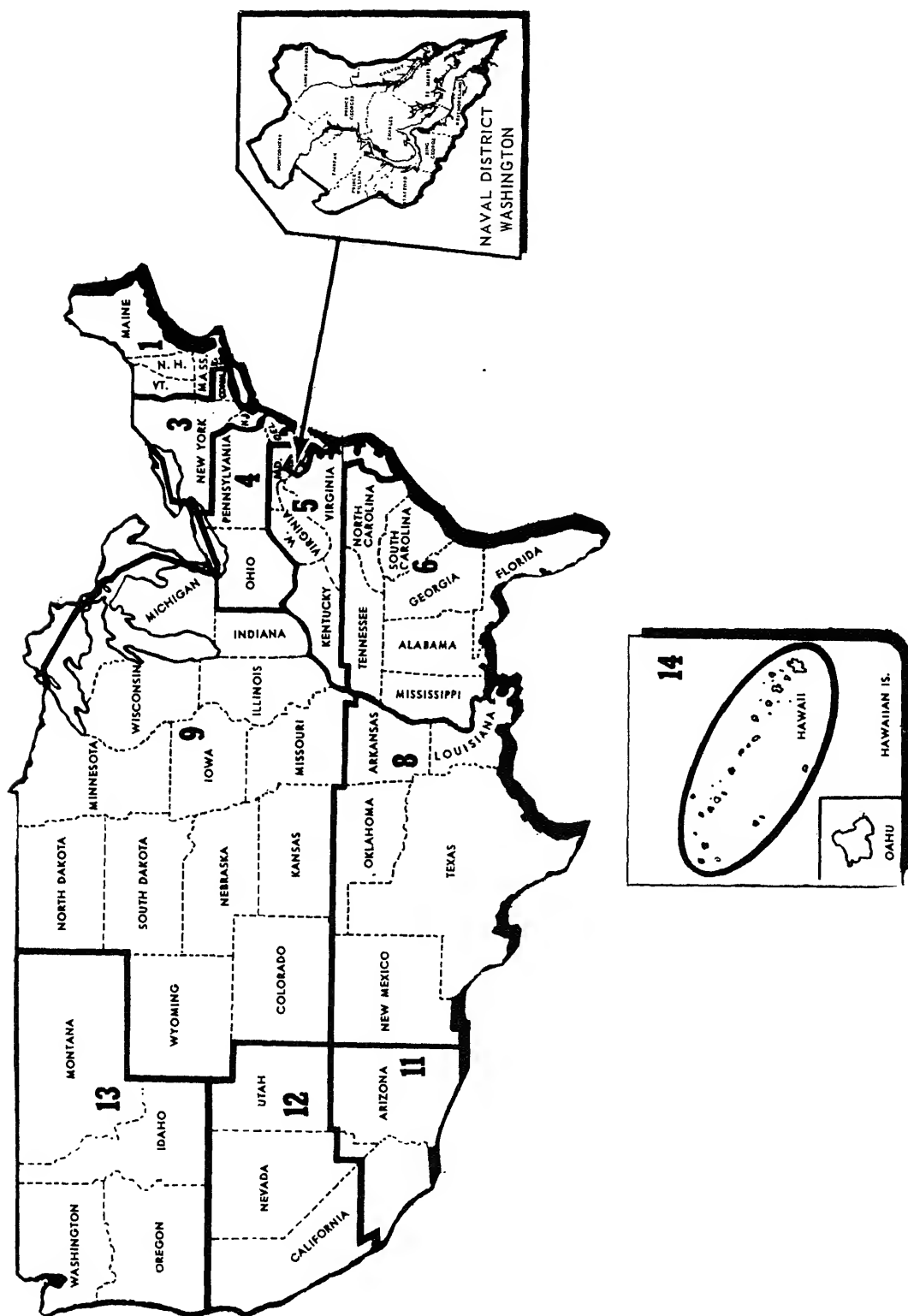


Figure 9-4.—The naval districts.

command authorities. The task of the area coordinator is to ensure that within his geographic area there is a coordinated effort to provide for support of the fleet, effective administration, readiness, and a balance of effort among the shore activities.

With comparatively few exceptions, the assignment of area coordination responsibilities is based on the following: (1) activities located in a naval district are assigned to the district commandant, and (2) overseas (non-naval district) activities are assigned to the appropriate fleet commander in chief.

Area coordinators may subdelegate area coordination to appropriate commands and activities within their jurisdictions. Thus, although the Commandant of the First Naval District is area coordinator for all shore activities within his district, the commanders of the naval bases in Boston and Newport are delegated immediate area coordinators for those activities in their geographic areas.

NAVAL DISTRICTS

Commandants of the 11 continental and 1 extra-continental naval districts (figure 9-4) are regional representatives of the Chief of Naval Operations for matters that fall within his responsibility, and for the Secretary of the Navy on matters of direct secretarial interest.

The 12 naval districts have been reorganized and the number of primary duty commandants reduced to four. Under the restructuring, there still are 12 districts, but only four primary duty commandants: COMFOUR, Philadelphia; COMNDW, Washington; COMNINE, Great Lakes, IL; and COMTHIRTEEN, Seattle.

COMONE (Boston) and COMTHREE (New York) each became an additional duty of COMFOUR; COMFIVE (Norfolk) and COMSIX

(Charleston) currently are additional duties of the Naval base commanders at those locations; COMEIGHT (New Orleans) responsibilities were transferred to the Chief of Naval Reserve; Commander, Naval Base, San Diego assumed COMELEVEN (San Diego) and COMTWELVE (San Francisco) responsibilities, and COMFOURTEEN (Pearl Harbor) responsibilities were transferred to a subordinate commander of CINCPACFLT.

In general, district commandants have substantial responsibility in the following areas: Naval Reserve training; coordination of the efforts of shore field activities; continuous evaluation of the capabilities and readiness of all shore activities for furnishing support to fleet units consistent with requirements; defense of the districts and control of local disasters or emergencies; initiation of integrated relationships among shore activities to ensure military effectiveness; and the coordination of public affair matters throughout their districts.

NAVAL BASES

A naval base includes all naval shore activities in a given locality. The primary purpose of a naval base is to coordinate services provided to the fleet by naval activities in close geographical proximity. Each naval base commander has under his jurisdiction such activities, including in some cases air stations, as may be directed by the Chief of Naval Operations. These activities may include a shipyard and other activities providing direct logistic support to the fleet. A naval base commander exercises military command over the component activities, unless command relationships are otherwise prescribed. The naval base commander is under the military command of the district commandant.

CHAPTER 10

COMPONENTS AND SUPPORTING ELEMENTS OF THE NAVY

Essential to the Navy in the performance of its mission are various components. Some of these are discussed in this chapter, as are such supporting elements as the U.S. Coast Guard, which becomes part of the Navy in time of war, and the U.S. merchant marine. Other components, such as U.S. Marine Corps and the Naval Reserve, are discussed in subsequent chapters.

CIVIL ENGINEER CORPS

Officers of the Civil Engineer Corps (CEC), who administer the work of the Naval Facilities Engineering Command (NAVFACENGCOM), are commissioned naval officers having special technical qualifications. They are engineers, planners, estimators, analysts of the Navy's shore facilities, and overseers of the construction and maintenance of the shore establishment. Additionally, they command the field forces that construct advance bases for support of Marine and Navy contingency operations.

The Commander, Naval Facilities Engineering Command also is the Chief of Civil Engineers (that is, the head of the Corps). He exercises technical direction over the Naval Construction Forces, generally known as the Seabees. NAVFACENGCOM also has support responsibility of commands and organizations (such as construction battalion centers) established as separate activities of the Department of the Navy whose primary function is the organizing and equipping of the Naval Construction Forces.

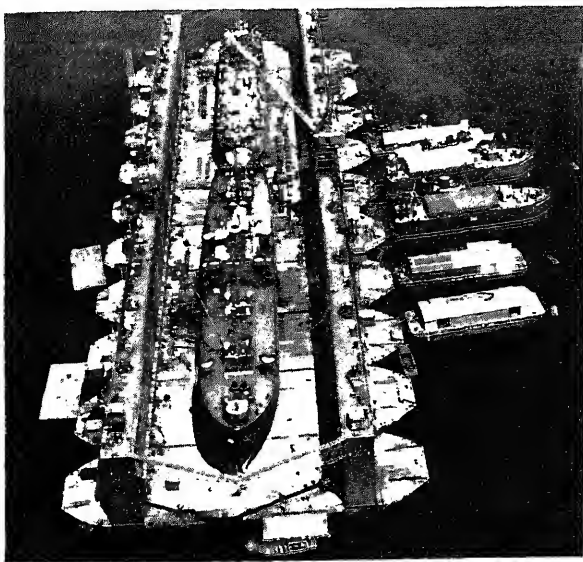
The World War II job of NAVFACENGCOM (then the Bureau of Yards and Docks) as an administrative component and of the CEC as an

operational force was tremendous. Fueling and docking facilities had to be established; food and equipment depots were needed to handle supplies for the combat areas; hospitals were necessary to receive the wounded and sick; and repair facilities for ships had to be equipped and ready for instant action. Most pressing of all was the need for airstrips.

Many CEC officers supervised the specialized work of Seabee maintenance units which took over maintenance of advanced bases, thereby releasing construction battalions for participation in new landings; some were in charge of pontoon detachments, smoke generation units, malaria-control units, and underwater demolition teams.

An outstanding example of World War II NAVFACENGCOM accomplishments was the floating drydock program. The few floating drydocks constructed before the outbreak of war were designed for use in quiet harbors where outside facilities existed for power and crew accommodations. This war, however, involved naval warfare on a scale previously unknown, and it became imperative that a way be found to repair ships thousands of miles from home ports. To this end, the Civil Engineers prepared radically new designs for a fleet of floating drydocks that could repair ships close to the scene of battle, making it possible for damaged ships to return quickly to the fight.

The designs included docks that carried their own power machinery and crew quarters, docks with ship-like hulls for fast towing, and, most important, docks of a size that could handle the largest ships afloat. Originally, it was planned to build a single-unit dock capable of cradling a battleship. Because such a structure could have been sunk by a single torpedo, the plan was



134.44

Figure 10-1.—CEC-conceived sectional drydocks made it possible to repair the largest ships close to the scene of battle.

abandoned in favor of a dock built in sections that could be towed to an advance base and there welded together into a single dock, as in figure 10-1.

Called the advanced base sectional dock (ABSD), the structure consisted of ten sections that were interchangeable, so that, if hit, a damaged section could be cradled in the other sections and repaired.

During the last year of World War II, the 150 war-built floating drydocks serviced 7000 ships in combat areas.

Equally or even more spectacular was the development of the Navy pontoon, the famed "magic boxes" of World War II. The concept came from a cigarbox model made by a CEC captain. Pontoon causeways, beached from shipside while underway, enabled Allied forces to bridge the shallow waters along the southern coast of Sicily—to the surprise of the Germans, who had considered those waters a natural barrier. Some 10,000 Army vehicles rolled from ship to shore over the steel pontoon bridges, as

in figure 10-2, setting the pattern for every ensuing invasion in the war.

The pontoon was put to many uses. Various assemblies were made, including net tenders, causeways, floating cranes, drydocks, finger piers, seaplane service piers and ramps, and even an experimental aircraft landing field.

Post-World War II years have seen rapid technological and management system expansion throughout the engineering world and the Department of Defense. NAVFACENGCOM has been a leader in developing advanced management systems and adapting these to the latest computer hardware; examples are the Shore Facilities Planning and Programming System and the Seabee management tool, Seabee Tactically Installed Navy Generated Engineer Resources System (STINGER).

In the areas of engineering development, NAVFACENGCOM strives to turn the most up-to-date technological advances into the basis for efficient, economical shore facilities for the Navy. NAVFACENGCOM research also is deeply involved in the future, with such concepts as underwater construction being studied in detail.

A major engineering accomplishment of the CEC was its direction of the massive Vietnam construction program. Over 100 CEC officers directed the efforts of a 25,000-man civilian work force under the control of United States contractors in accomplishing a \$2 billion program that considerably upgraded the entire face of the nation.

Many new engineering concepts have developed from the Vietnam experiences including a new lightweight, high-strength replacement for the old pontoons discussed previously.

Throughout the years 1942-1968, however, the proudest CEC accomplishment has been the meteoric growth and fame of the Seabees.

THE SEABEES

The forerunners of the Naval Construction Forces date back to World War I when a



3.85

Figure 10-2.—LSTs can launch pontoon causeways while underway or upon beaching, momentum carrying the causeways to the beach. When the marriage between LST and causeway is made, vehicles leave the ship under their own power.

construction regiment was formed to supplement the public works department in the construction of recruit training facilities at Great Lakes. A small detachment of the regiment also went overseas to build communication facilities in France. After the war, the regiment was decommissioned.

With the advent of World War II, the services of contractors and their civilian employees engaged in building naval projects overseas could not be utilized for construction work in combat zones. Under military law their status as civilians prevented them from offering resistance to an enemy without becoming liable to summary execution as guerrillas in the event of capture.

Further, civilian workers lacked the training necessary to defend themselves.

The Chief of the Bureau of Yards and Docks, Admiral Ben Moreell (now referred to as the King Bee), therefore proposed the creation of a construction force within the Navy to meet the needs for uniformed men to perform construction work in combat areas. Three naval construction battalions (NCBs) were authorized in January 1942; they served under officers of the Civil Engineer Corps. The name "Seabees" derives from the initials of the term "construction battalion." (See figure 10-3.)

A battalion, still the fundamental unit of the Seabee organization, was composed of four

construction companies, which included necessary skills for any job, plus a headquarters company consisting of yeomen, storekeepers, cooks, and so on. As a complete operating unit a battalion could be sent into the field on its own. The complement was set at 32 officers and 1073 men.

In the early stages of the war, the NCB operated overseas as an independent unit, with the officer in charge responsible for making all decisions of an engineering and military character. As the number of battalions in a given area increased, and as large construction projects were undertaken, a higher command echelon became necessary to coordinate the work. Consequently, naval construction regiments were established. In large areas, where many battalions operated, brigades were formed. Finally, at Okinawa, a task force unit was created, embracing more than 100,000 Seabee and United States Army and British engineers. Altogether, 12 brigades, 54 regiments, and more

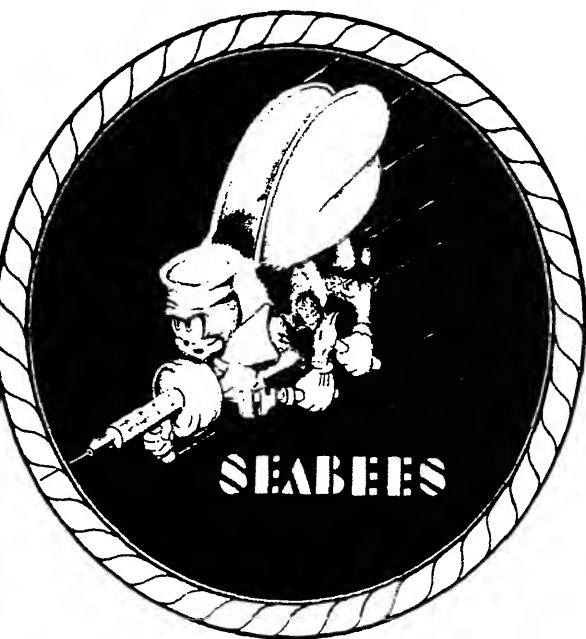
than 150 battalions were formed. Peak strength was a quarter of a million men.

Construction of an advance base—the Seabees' primary function—was a complex task. A typical project was the construction of an airbase. The first job was to get equipment ashore despite enemy resistance. After the beachhead was established, roads had to be cut inland to the site of camp and airstrip. Supplies and equipment had to be moved off the exposed beach. Following this, many activities got underway simultaneously: a campsite was cleared and a source of water found and developed; hospital and messing facilities were set up; gun emplacements were built and radar protection installed; access roads were pushed through; and construction of the airstrip started. The menace of enemy aircraft was always present, with snipers sometimes operating from the jungle's edge. It took about 2 weeks to develop a fighter strip to the point where planes could land and take off.

Meanwhile, construction of other facilities had kept pace. A pier and dock had been built, and fuel tanks for aviation gas erected and camouflaged; powerplants, warehouses, and shops had been put up and permanent structures for personnel replaced makeshift quarters; an administration building, dispensary, post office, and utility structures were made ready for use.

Such a base was built by a single battalion of Seabees, serving as part of an all-service airbase unit. For more extensive bases, such as an all-purpose base to fuel and repair ships, supply the fleet, and serve the fleet's air arm, three or more battalions were required.

The Seabees were assigned the construction of shipbuilding and ship repair plants; port and harbor works; aviation training and operating stations; ammunition depots and ordnance production facilities; supply depots, hospitals, fleet operating bases, and fuel depots; housing for officers, enlisted men, and civilians; and floating and graving docks of all sizes and characters. They constructed bases in the United Kingdom, Iceland, Newfoundland, Bermuda, the Caribbean area, Panama, South America, Africa, Alaska, and wherever the fighting forces went in the Pacific. Worldwide, Seabees constructed



134.137

Figure 10-3.—The CB insignie, appropriately enough, is a bee. Fighting mad, it is going into action carrying some of the tools of its trade—wrench, hammer, and spitting machinegun.

more than 400 advance bases—some accommodating 50,000 men—and housing facilities for 1.5 million men.

In 1946 the Seabees, originally established only as a wartime force, were made a permanent part of the Navy. In 1948, "Group VIII" (construction) ratings were established for enlisted Seabee personnel. Prior to that time, there were no construction ratings as such.

The main assignment of early postwar Seabees was to perform maintenance work at Navy overseas bases. Occasionally, they received assignments to perform special missions such as constructing housing at an advance base, or participating in special operations such as the atomic bomb tests and expeditions to the Antarctic.

The most ambitious postwar project involved construction of Cubi Point Naval Air Station at Subic Bay in the Philippines. Seven years in the doing, construction of the field turned out to be an earth-moving chore comparable to digging the Panama Canal. The Seabees literally tore down a mountain to get the 17 million cubic yards of earth and rock needed to complete the job.

Cubi Point construction was accomplished in part for support of Korean operations. Amphibious construction battalions (described later, but mainly concerned with pontoonery and across-the-beach operations) played a key role in supporting the Inchon landing. Other Seabee units built airfields and maintained Marine facilities. Several battalions were deployed to the Philippines (such as those involved in the Cubi job), Okinawa, and other Pacific island bases to build support facilities vital to the Korean logistics chain.

From 1953 onward Seabee battalions (now called naval mobile construction battalions (NMCBs)—the term truly fits; every piece of today's specially designed Seabee equipment can be airlifted) worked in such places as Cuba, Spain, Newfoundland, Guam, Okinawa, and the Philippines, to mention a few.

In May of 1965 the then 10,000-man Seabee force was called on again and MCBs went across the beach in Chu Lai, Republic of Vietnam. During the peak of the conflict Seabee strength

more than doubled to 25,000 men in 21 battalions. Nearly \$100 million of construction had been placed during more than 3 million man-days of grueling effort by the Seabees. Jobs were diverse, ranging from construction of huge logistics complexes in Da Nang and Chu Lai in the early phases of the conflict, to building camps in remote locations for the Army Special Forces (Green Beret) troops.

The breakdown of Naval Construction Forces includes the following basic elements:

- Naval construction brigade (NCB)
- Naval construction regiment (NCR)
- Amphibious construction battalion (PHIBCB)
- Naval mobile construction battalion (NMCB)
- Construction battalion maintenance unit (CBMU)
- Construction battalion unit (CBU)
- Naval support unit (NSU)

Seabee Team

A brigade consists of two or more regiments; a regiment is composed of two or more mobile construction battalions; and the battalion still consists of five companies, although manning is now at 550 to 750 as opposed to the World War II 1000-man battalion. The basic operational component is the battalion, as it has been since the construction forces were created in 1942. The brigade commander directs and coordinates activities of Seabee regiments. Regimental commanders coordinate the efforts of attached battalions, provide "home base" facilities, issue needed material and equipment, and provide administrative support training.

The function of an ACB (or PHIBCB) is to provide engineering support required by a naval beach group during an amphibious operation. The task of a beach group is to support a division of troops during, as a minimum, the assault phase of the operation. The role of a PHIBCB is, as an example, to provide pontoon causeways, beach salvage teams, beach improvement teams, and ship-shore fuel systems, each function being performed by a platoon specially trained for the job. A PHIBCB is

self-sufficient but normally is not intended for lengthy deployment in the field; when the beach group's operation is completed, the PHIBCB's mission also has been accomplished.

An NMCB is an independent, self-sustaining unit organizationally designed to operate alone. It can accomplish a large variety of construction missions—roads, bridges, airstrips, fuel storage tanks, water supply system, and electric installations, to name just a few—in addition to erecting probably any type of building. The composition of an NMCB necessarily represents a large cross section of the building trades—carpenters, plumbers, electricians, engineers, surveyors, heavy equipment operators, and so on.

The primary job of the Seabees is to build, but based on the theory that they can't build unless they control the jobsite, all Seabees receive training in defensive combat tactics. Controlling the jobsite involves the second part of being a Seabee, the fighting part, as exemplified by the Seabee motto "Construmus batuimus" meaning "We build—we fight."

Each company in a battalion organization is divided into combat platoons, squads, and teams (fire, machinegun, and rocket). A Marine gunnery sergeant is assigned on an augmented basis as a military advisor and training specialist to the commanding officer of the battalion.

As a self-sustaining unit, the NMCB in particular must be capable of self-defense for a limited time. Each battalion subdivision has a construction/military support assignment and every officer and man fills a construction/military support billet. The construction aspect, of course, predominates; the mission is to build. Platoons are organized into work crews that correspond to the weapon squad organization. The basic construction/military support units, then, are the work crew/rifle fire team, work crew/automatic weapons team, and the work crew/rocket launcher team.

The function of a CBMU is upkeep and maintenance of completed bases. It is also equipped, however, to accomplish relatively light construction projects.

Seabees have constructed numerous Antarctic bases since 1955. CBU did the base construction during the "summer" season while a maintenance unit wintered over for the

purpose of upkeep. Presently CBUs are constructing and working on bases around the world.

The Naval Support Unit (NSU), State Department, provides construction support to the U.S. Department of State. The duty involves the inspection of foreign contract construction and the accomplishment of minor construction and repairs within secure areas of foreign service buildings overseas. The activity has a personnel strength of volunteers and is commanded by a CEC lieutenant commander or lieutenant. The enlisted personnel are second-class petty officers or higher. Married personnel are assigned to unaccompanied tours initially and then to a two-year accompanied tour. Unmarried personnel customarily remain in a "transit" status during most of their tour. The Navy is reimbursed by the Department of State for all costs associated with this unit.

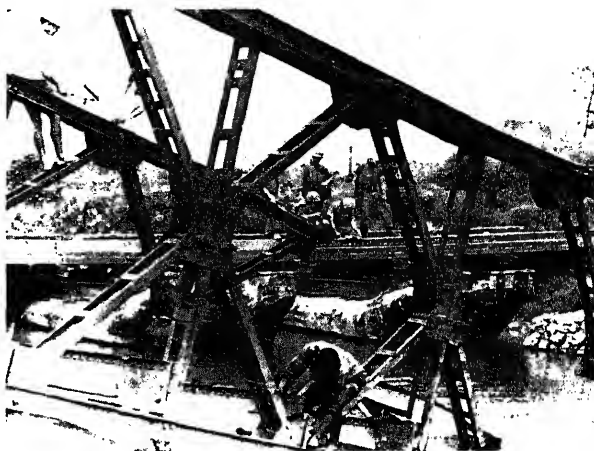
Seabee teams consist of 1 CEC officer and 12 enlisted men. Every man is cross-trained in at least one rate other than his own, so that in essence the capability of each highly diversified team actually is more than double that of the indicated manpower. The teams comprise a breed of civic action/counterinsurgency builder-fighters that can be flown, with their equipment, anywhere in the world on short notice. They are self-sufficient in the field and can do a variety of construction tasks. In general, teams serve as goodwill ambassadors, building or advising on the construction of public works projects in small nations unable to accomplish the tasks themselves. They have been assigned to a number of countries and trust territories in the Pacific to build roads, drill water wells, and erect schools, for example.

In Vietnam, teams went out among the people for months at a time as part of the people-to-people civic action program, to advise on sanitation and health matters, take care of the sick (a specially trained hospital corpsman was assigned to each team), and to teach basic construction skills to villagers. A Seabee team member, Marvin Shields, CM3 (whose deeds were described in chapter 2), was the first Navy man to win the Medal of Honor in Vietnam.

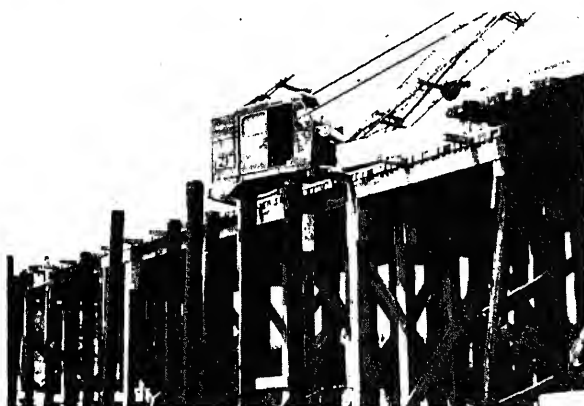
Figure 10-4 illustrates the diversity of Seabee functions in Vietnam.



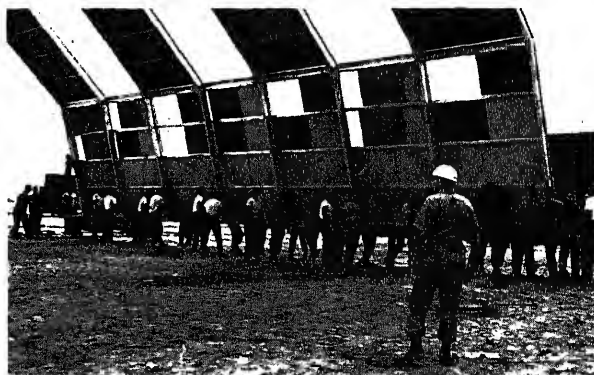
A. STEELWORKERS REMOVE ROCKET-DAMAGED STEEL MATTING FROM AN AIRFIELD PARKING APRON.



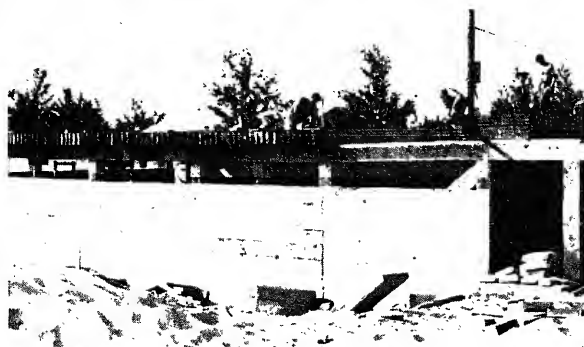
B. BRIDGE EXPERTS SURVEY VIET CONG-BLOWN BRIDGE.



C. UNITS OF AN NMCB CONSTRUCTING A BRIDGE.



D. ERECTING A HANGAR FOR THE MARINES.



E. WORKING ON A CANTONMENT FOR ROK TROOPS.



F. PERIMETER PATROL RETURNING TO BASE.

THE SUPPLY CORPS

Officers of the Supply Corps are the Navy's business administrators. As such, they are responsible for ensuring that the vast logistics requirements of the Navy, as set forth by the Chief of Naval Operations, are provided efficiently and economically to ships and activities around the world. This entails the management of a supply system that must furnish well over a million items essential to the operations of ships, missiles, aircraft, and facilities. In addition, Supply Corps officers manage the operation of food service, ship's store, and Navy Exchange facilities; and disburse pay and allowances of Navy men and women.

Duty assignments of Supply Corps officers range from that of supply officer aboard a destroyer to the Commander, Naval Supply Systems Command, a rear admiral, who also serves as the Chief of the Supply Corps. The Naval Supply Systems Command is responsible for overall management of supply ashore and afloat. Disbursing and certain other comptrollership billets to which Corps officers may be assigned are under the management of Comptroller of the Navy.

The afloat supply officer is chiefly concerned with procurement, receipt, custody, stowage, and expenditure of material for ship's use; maintenance of stock records and inventory control; food service and ship's store operations; and payment of the crew. Ashore, billets involve requisitioning and local procurement, contract purchasing, material inspection and receipt, stock management at field supply points, supply systems management, storage and materials handling, and financial management.

Current Corps strength is about 4500 officers, 50% of whom serve afloat and overseas. The main source of Supply Corps officer input is the NROTC (Regular) Program including some "hard science" majors. Others are received from the Naval Academy, OCS programs, the LDO Program, and line officer transfers. While not officially members of the Corps, about 300 warrant and chief warrant officers serving in the technical specialty of Supply Clerk also are

assigned to Supply Corps billets both afloat and ashore.

Newly commissioned Supply Corps officers, including line transferees, and newly appointed warrant Supply Clerks are sent to the Navy Supply Corps School, Athens, Georgia, for 26 weeks of intensive training in Basic Supply Management. In addition they receive instructions in a wide range of sophisticated management techniques, including automatic data processing. On completion of the course, most Corps officers are initially assigned to afloat billets followed by tours ashore in CONUS and overseas. The typical rotation pattern of Corps officers is discussed in chapter 3. By his or her third tour, the typical Supply Corps officer is expected to develop a functional proficiency in one of the following fields: clothing and textiles, financial management, fuel distribution, merchandising, procurement, subsistence technology, system inventory management, or transportation management.

Courses in Navy Exchange Management (6 weeks) and Commissary Store Management (4 weeks) are conducted several times yearly at the Navy Ship's Store Office, Brooklyn, New York. A 6-month course in Transportation Management conducted at the Naval Supply Center, Oakland, California, covers material on terminal operations and stevedoring, traffic management, and warehousing. Supply Corps officers also are eligible to attend other courses of varying length conducted at both military and civilian facilities on subjects ranging from petroleum storage to computer systems.

Development of a functional proficiency in no way detracts from the Supply Officer's overall opportunity to upgrade his or her professional qualifications as a naval officer. Each year approximately 100 Supply Corps officers are selected for postgraduate training at military and civilian institutions, some at the doctorate level. Studies range from logistics and management sciences to law and personnel administration. Long-range plans for the Supply Corps officer envision him as a techno-economist skilled in mathematical sciences, analytical methods, and behavioral sciences essential to future Navy operations.

THE NAVY MEDICAL DEPARTMENT

The term “Medical Department” designates the worldwide medical and dental services and facilities maintained by the Department of the Navy in accomplishing its assigned mission within the national defense structure of the United States. The mission of the Medical Department is to safeguard the health of the Navy and Marine Corps. This includes care and treatment of sick and injured members of the naval service and their dependents; training programs for Medical Department personnel; continuing programs of medical and dental research; prevention and control of diseases and injuries; promotion of physical fitness in members of the naval service; care for on-the-job injuries and illness of civilian employees; and supervision of the care and preparation for shipment and interment of deceased military members and of civilian personnel for whom the Navy is responsible.

Members of the medical profession have always played an important role in the Navy. They have served with gallantry and distinction on every type of fighting ship, from the *Alfred*, the vessel on which John Paul Jones hoisted the first American flag in 1775, to the modern nuclear-powered submarines.

The history of the Navy’s medical department shows that it is increasing in professional competence, specialization, mobility, and prestige—results due, in no small part, to the organized efforts of its members. In the early days of the Navy, however, physicians were selected by commanders of naval vessels for individual voyages. Medical officers were not formally organized and had little, if any, relation to one another. Interesting travel and a share in any booty a ship might capture served as inducements to join the Navy.

In the early days of the Navy, medical and surgical attention was provided by Surgeons or Surgeons’ Mates. Their assistants, selected from the crew, were known as “loblolly boys,” a designation used in the British Navy, the term was derived from the name of a porridge served to the sick and injured. Loblolly boys were ill-trained, but undoubtedly many of them gave

of themselves a full measure of their capabilities; they were the nucleus of a group much later organized into what is now the Hospital Corps.

While naval regulations, as early as 1798, called for “a convenient place to be set apart for sick and hurt men” aboard naval vessels, the ill-ventilated, poorly lit, and inadequately equipped spaces reserved for the care of the sick on early ships was a far cry from the completely appointed sickbays of today.

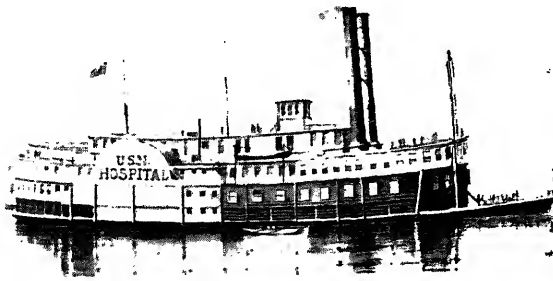
The lifesaving drugs and effective techniques of modern medicine were unknown. Surgeons lacked adequate anesthetics and antiseptics. Great faith was placed in vinegar as a germ killer; rum and opium compounds were the most frequently used agents for deadening pain.

ORGANIZATION OF THE MEDICAL DEPARTMENT

The first real effort to provide a distinct medical organization within the Navy Department was made in August 1842, when Congress established the Bureau of Medicine and Surgery. Surgeon William P. C. Barton, who 27 years before had published a *Scheme for Systematizing the Medical Department of the Navy*, was chosen as first chief of the bureau. He was offered, but refused, the additional title of surgeon general. He was selected from a list of 60 surgeons then serving in the Navy.

In the 1860’s the Medical Department expanded with the growth of the Navy. During this decade the hospital at Washington, D.C., was built; the Annual Reports of the Surgeon General, later to be of much value to public health authorities and other officials, were continued; and the Navy’s first so-designated hospital ship, the *Red Rover* (figure 10-5), was commissioned. This ship, a sidewheeler captured from the Confederates, was converted into a hospital ship at St. Louis. Virtually a “floating palace” for its time, it had elevators between decks, fully equipped wards, screened windows, well-appointed operating rooms, and nine “water closets.” The Navy’s first female nurses also served aboard the *Red Rover*.

In 1871 medical officers were no longer listed simply as surgeons, but as members of a staff corps of the Navy. They were given grades



134.47

Figure 10-5.—USS Red Rover, the Navy's first regular hospital ship, was in use during the Civil War. The Navy's first female nurses served aboard her.

of medical director, medical inspector, surgeon, and past assistant surgeon, the grades being generally comparable to captain, commander, lieutenant commander, and lieutenant, respectively. Assistant surgeons on their first cruise had the "relative rank" of ensign.

Rating designations of enlisted personnel have gone through many changes. The loblolly boy was succeeded, in 1843, by surgeons' steward. During the Civil War male nurses were enlisted and assigned to receiving ships "in a number proportionate to the necessities of the case." The designation of surgeons' steward was changed to that of apothecary in 1866; about 1873, the male nurse became a "bayman." These designations remained until 1898, when the present Hospital Corps was established.

In 1883 the Museum of Naval Hygiene was founded in Washington. The first *Instruction for Medical Officers*, a compilation of naval regulations affecting the Medical Department, was revised. It had first been published in 1867 when Gideon Welles was Secretary of the Navy. After the 1909 edition, this book was titled *Manual of the Medical Department, United States Navy*, with a drastically improved edition in 1914.

The grade of rear admiral was given to the Surgeon General of the Navy in 1899, and the Medical Department thus acquired added prestige.

Under Surgeon General Rixey and President Theodore Roosevelt, annual physical examinations for officers were inaugurated.

The Nurse Corps (female), forerunner of the present-day Navy Nurse Corps, was created by an act of Congress in 1908.

In 1911 antityphoid vaccination was made mandatory, and the systematic teaching of first aid was instituted. In the following year the Dental Corps was established under the new Surgeon General, Charles F. Stokes.

The rating of hospital steward was officially changed to pharmacist's mate (PHM) in 1916; the Hospital Corps was established by Congress at 3-1/2% of the enlisted strength of the Navy and the Marine Corps.

In 1947 the Medical Service Corps was established to provide commissioned grades for personnel in administration and supply, pharmacy, optometry, and medical allied sciences; the Nurse Corps, a component of the Medical Department, was established as a staff corps of the Navy in April 1947; and the rating of pharmacist's mate was changed to hospital corpsman.

During World War I, the Medical Corps made notable improvements in sanitation and the control of infectious and contagious diseases, such as typhoid and scrub typhus.

Medical Department personnel rendered outstanding service to the men of the Fourth Marine Brigade, part of our Second Division, in France. At Belleau Wood, Chateau-Thierry, and St. Mihiel, among other battles, hospital corpsmen and officers shared the dangers and brought succor to the wounded. A total of 60 Medical Corps officers, 12 Dental Corps officers, and 500 hospital corpsmen of the Navy were assigned to field service with the Marines. Of 17 Medals of Honor awarded to the Armed Forces during the war, 3 were won by officers of the Navy Medical Department.

In preparation for overseas assignments, corpsmen and doctors trained with the ground troops from the first days at Quantico, Virginia. Out of these weeks of training, an organization of medical facilities was developed—the first practical school of field medicine in the United States, which foreshadowed the later development of medical support for Marine Corps amphibious landings in World War II.

During World War II, the largest waterborne medical department in the history of warfare was created. By August 1945, there were 42 established naval hospitals, as well as 12 special hospitals, with a patient load of 81,445, and also many smaller medical units for medical treatment, physical examinations, immunizations, and short-term care. In this, the most destructive of all wars, the Medical Department achieved a remarkable record in saving human lives. Despite the fact that bombs and high explosives produced wounds of a far more serious nature than in any previous warfare, about 97 of every 100 wounded men managed to survive. This mortality rate of less than 3%, compared with 11.1% in World War I, was due to several factors.

Casualty evacuation from beachheads to advanced base hospitals, a joint operation with line personnel of ships and aircraft, was a highly important contributing factor to this high rate of survival. In many cases, transport by water or air was so rapid that casualties were being operated on at a rear base hospital 2 hours or less after being wounded. Hospital ships incorporated the most advanced improvements of permanent hospitals ashore and were completely air-conditioned. Air evacuation, pioneered on a large scale by Navy medical officers and hospital corpsmen attached to the Marine Corps in the early campaigns in the South Pacific, likewise ranks high among factors resulting in such low mortality.

Hospital corpsmen, who braved death to aid the wounded where they fell, deserve the highest credit for their contribution to the achievement of the Medical Department's mission. In some cases, their casualty rate was higher than that of the troops they were supporting. The Hospital Corps won its deserved reward in the form of a Presidential Citation, the first time in naval history that an entire combat organization was cited for heroism.

In previous conflicts in which this nation engaged, deaths of naval personnel from disease far outweighed those of enemy action. World War II reversed the ratio. The early and successful use of vaccines, antitoxins, and other preventive measures accounts for the unusually low disease rate among servicemen.

The effectiveness of preventive medicine is dramatically shown by the low mortality rate from diseases among American combat troops on Guadalcanal, where jungles were sources of malaria and jungle fevers. Thousands of Japanese on that island perished from disease. But Americans listed as dead (from all causes) or missing on Guadalcanal totaled only 1500.

In addition to its highly important task of caring for the wounded, the Medical Department during World War II handled an enormous case load of ordinary sickness and injuries. Some 90,000 wounded were treated, but over 50 times that number of cases of disease and noncombat injury were handled. Many new and improved methods of treatment were developed.

During the war the Medical Department expanded its personnel to a strength of 170,000—a total larger than the regular force of the Navy before the war. Of this number about 21,000 were medical and dental officers and 11,000 were nurses.

Since World War II Navy physicians and dentists have further advanced their professional techniques and have made more mobile the medical care they provide combat forces.

In the Republic of Vietnam, wounded men were quickly evacuated by helicopter directly to the decks of hospital ships. Patients requiring long-term specialized care were evacuated by air to appropriate facilities in the United States. Physicians participated in the planning of operations, to avoid strategic assaults in disease-ridden areas or to assure that control measures would be ready if such assaults were made. A mobile dental laboratory with its own powerplant provided most types of dental care close to the front lines. Surgical teams with their equipment moved about by air to supplement regular medical support wherever they were needed, particularly in combined Navy and Marine Corps amphibious assault operations. Devices such as fully equipped surgical trailers brought definitive care to frontline troops.

In Vietnam, hospital corpsmen served with elements of the Fleet Marine Force while under fire. In figure 10-6, a hospital corpsman bandages the leg of a wounded Marine prior to the Marine's evacuation by helicopter. The benefit of quick evacuation to the morale of the fighting man is an important answer to the why

of aeromedical airlift. Only 1% of personnel injured by hostile action in Vietnam died after reaching a medical facility. In Korea, where fewer than 15% of the wounded were moved by helicopter, the rate was 2%; and in World War II, with no helos, the rate was 4.5%.

Medical personnel also were active in the Vietnam civic action program (CAP), administering to the medical needs of the people. The hospital corpsman in figure 10-7 is treating an injured 85-year-old woman while

she talks to the chaplain and other members of the MedCAP team of which he is a part.

THE MEDICAL DEPARTMENT TODAY

The first naval hospital was opened in Portsmouth, Virginia, in 1830. In its earliest days, the medical staff was limited to five men and very little equipment. The steady progress made in the naval hospitalization system since 1830 has kept pace with the rapid strides made in civilian hospital services and medical education in the United States during the past century. As of 1976 the Navy had 14 hospitals, 21 medical centers, and 198 clinics.

A naval hospital provides relatively full diagnostic and therapeutic service together with bed care, nursing, and dietetic services. Because accessibility and capacity to serve the Operating Forces are prime site considerations, most hospitals are located along the coastal states. Station hospitals can offer extended care to patients, but they are smaller and more limited in scope. A medical center is one equipped and manned to provide temporary in-patient treatment for those with a favorable prognosis for early release. A clinic is designed mainly to provide examination and treatment for ambulatory patients and first aid for emergency cases.

The largest dental facilities ashore are naval dental clinics, established in areas of heavy personnel concentration. Equipped and manned to furnish complete dental care, there are about 10 clinics worldwide. Services rendered by dental departments at other shore installations depend on the size of the dental facility, which in turn relates to the number of personnel served.

Aboard ship, the scope of Medical Department facilities is contingent upon the complement of medical personnel, available space and equipment, capability of the staff, and mission of the ship. Facilities thus range from the scantily furnished sickbay of a destroyer to one that is fully equipped aboard a carrier. Personnel assigned vary from 2 hospital



134.139

Figure 10-6.—A hospital corpsman bandages the leg of a wounded Marine during a search-and-destroy sweep near An Hoa, South Vietnam. The helicopter in the background brings in more troops and will evacuate the wounded.



134.140

Figure 10-7.—Participating in the civic action program, members of the MedCAP team journeyed to the island of Ky Xuan twice each week to minister to the medical needs of the people.

corpsmen on destroyer types (the senior being specially trained for independent duty) to perhaps 40 or 45 officers and men on aircraft carriers. The type or class of a ship normally determines the size and capacity of its dental facility.

THE CHAPLAIN CORPS

Among the various needs of naval personnel is that of religious ministry. Just as he is responsible for the military performance of the personnel of his command, the commanding officer also has a definite responsibility for ensuring that the religious needs of the men and women under his command are met. Chaplains are assigned to commands, therefore, to assist in the fulfillment of that responsibility and to support the preservation and enhancement of

the moral and spiritual well-being of the personnel of the command.

The Navy Chaplaincy, established November 28, 1775, has played a significant role in the providing of such support and spiritual guidance for naval personnel and their dependents. Though commissioned as an officer, the chaplain is first an ordained member of the clergy in one of the religious bodies of the country. In the wearing of the naval uniform, it is believed the chaplain's effectiveness is enhanced as he attempts to provide ministry within and to the military organization. The uniform, itself, indicates responsibility to the naval service and the nation. The insignia worn, the Cross or the Tablets of the Law, identify the chaplain and emphasize responsibility to church and spiritual values.

Standards for appointment as a chaplain are high. Each appointee must be physically

qualified. Each must have completed at least 120 semester hours of undergraduate study in an accredited college or university and a minimum of 90 semester hours in an approved theological school. Before the appointment can be made, the chaplain must be duly ordained by his own Church and provided with an ecclesiastical endorsement by that Church.

As a religious leader, the chaplain is an advisor to the commanding officer on all matters pertaining to the moral, spiritual, and religious welfare of Navy and Marine personnel. Divine services conducted by the chaplain are always in accordance with the customs, traditions, and regulations of the chaplain's own Church. Frequently called upon to provide religious services for those of other faiths, however, the chaplain's responsibility includes such functions as inviting appropriate clergy aboard, training lay leaders, and providing proper material and ecclesiastical support to facilitate appropriate services for men and women of all faiths. Each chaplain is called upon to use ideas, techniques, and methods which will assist the development of personal growth and good character in all persons in the command.

Additionally, home and domestic problems, troubling personal issues and crises, as well as general welfare concerns shape the pastoral care dimension of the chaplain's responsibility. Often the bulk of the chaplain's effort is devoted to pastoral care and pastoral counseling. Every chaplain soon learns of persons who are perplexed or distraught and who are in need of counsel and assistance. And, too, chaplains regularly receive requests for instruction for baptism, confirmation, and for marriage.

Chaplains serve at sea on a normal rotational basis. Some are assigned directly to ships' companies. Others have become "circuit riders" to meet the needs of those on small ships and stations or when units are widely dispersed. For example, a chaplain assigned to minister to destroyer personnel will in fact serve many ships operating over great distances. Over 50% of the Navy Chaplains are in sea or overseas billets. In addition, Navy Chaplains accompany major tactical and support units of the U.S. Marine Corps. Approximately 20% of the total number on active duty are attached to Marine Corps

Units at any given time. Ashore, three or more chaplains may be assigned to larger Navy, Marine Corps, and Coast Guard stations, many of which have well-equipped chapels and educational facilities (figure 10-8).

Chaplains serve in commissioned grades from lieutenant (junior grades) through captain and are promoted in accordance with the same precepts and regulations which govern all other naval officer promotions. The Corps, itself, is directed by the Chief of Chaplains, a rear admiral. A second rear admiral serves as detailed by the Chief of Naval Personnel.

JUDGE ADVOCATE GENERAL'S CORPS

Although the American Fleet was authorized in 1775, and the Department of the Navy established by Act of Congress in 1798, the Navy had no official legal counsel until well into the 19th century.

FORMATION OF THE OFFICE OF JUDGE ADVOCATE GENERAL

In 1864, because of contract frauds arising under Civil War naval programs, Secretary of the Navy Gideon Welles created the position of Solicitor for the Navy Department. The quickly proven value of the Solicitor's function moved Secretary Welles to request legislative ratification of the new legal office, and by the Act of 2 March 1865 Congress established the Office of Solicitor and Naval Judge Advocate.

The Act of 8 June 1880 established the Office of the Judge Advocate General of the Navy as we know it today. This legislation placed upon the Judge Advocate General the duty to "receive, revise, and have recorded the proceedings of all courts-martial, courts of inquiry, and boards for the examination of officers for retirement and promotion in the naval service, and to perform such other duties as have heretofore been performed by the Solicitor and Naval Judge Advocate General." The Judge Advocate General was given



134.50

Figure 10-8.—On the naval base at Norfolk, Virginia, are the chapels of three faiths under one roof. To the left is the Protestant chapel; to the right, the Catholic chapel; and connecting the two, the Jewish chapel.

cognizance over all legal matters, of whatever kind, that affected the interest of the Navy.

Tremendous legal problems, some of a highly intricate character, were generated by World War II. In particular, great difficulty arose in connection with the preparation and administration of the Navy's contracts for the procurement of goods and services. To solve the immediate crisis, a unit of civilian attorneys were gathered, which in 1944, evolved into the Office of the General Counsel of the Navy.

Establishment of the Office of General Counsel brought about a dichotomy in the Navy's legal heirarchy that exists today. The Judge Advocate General is given, in addition to military justice and military law functions, cognizance of all legal duties and services throughout the Department of the Navy other than those specially assigned to the General Counsel for the Department of the Navy.

Functions assigned to the Office of the General Counsel are in the fields of business and commercial law.

FORMATION OF THE JUDGE ADVOCATE GENERAL'S CORPS

Prior to World War II, Navy lawyers were generally line officers with legal training, and their tours of legal duty, usually in the Office of the Judge Advocate General, alternated with tours of line duty at sea. During the war, large numbers of lawyers served in an admixture of line and legal functions throughout the world.

The idea of organizing the Navy's uniformed lawyers into a distinctive professional group performing only legal functions was first considered a number of years ago. In 1945 the Secretary of the Navy convened the McGuire

Committee (chaired by Matthew F. McGuire, a prominent civilian lawyer) to examine court-martial procedures under the Articles for the Government of the Navy. In its November 1945 report to the Secretary, the committee formally recommended, among other things, establishment of a Judge Advocate General's Corps in which officers would perform legal duties only, with promotions in the Corps to be predicated mainly upon professional competence in the performance of such duties. The committee reasoned that combining legal functions with line functions was no longer feasible in that legal difficulties incident to modern warfare require full-time, first-rate lawyers just as operational aspects of naval warfare require full-time, first-rate line officers. It was considered unrealistic to expect efficiency in these increasingly divergent and technical areas from the same individuals.

The recommendation of the McGuire Committee for creation of a Judge Advocate General's Corps prompted Secretary of the Navy Forrestal to appoint a board headed by Arthur A. Ballantine of the New York Bar to look further into the question. In April 1946, the Ballantine report concluded that World War II had demonstrated beyond all question the need to employ a large number of lawyers for the performance of legal duties on a continuous basis, but recommended the creation of "law specialist" as a category in the restricted line as being more advantageous to the Navy than creation of a JAG corps. In June 1946 the procurement of 300 lawyers was authorized and the law specialist program was implemented.

It was assumed originally that law specialists would supplement, not replace, line officers trained in law. The authorization for 300 law specialists was predicated on this assumption and upon the requirements of a Navy operating under the Articles for the Government of the Navy. In May 1950, however, enactment of the Uniform Code of Military Justice to supplant the Articles established new requirements for legal services. Many functions in the court-martial system created by the code had to be performed by law specialists, and could not be performed by other officers, even though trained in law. As a result, in the years after enactment of the code, the number of required

law specialists almost doubled. It became apparent that law specialists should supplant, rather than merely supplement, unrestricted line officers in the performance of legal duties.

During ensuing years numerous recommendations for establishment of a JAG corps were made. The attempts were unsuccessful until late in 1967 when a subcommittee of the House Armed Services Committee scheduled a hearing on provisions for the establishment of a JAG corps in the Navy. The Judge Advocate General of the Navy, appearing at the hearing, presented convincing testimony to show that membership in a legal corps would give the Navy lawyer a sense of professional identity and was expected to provide a potent career incentive.

The proposed legislation made the full course through a receptive Congress from subcommittee hearings to final passage within a period of little more than 2 months. Public Law 90-179, the bill establishing the JAG Corps as a staff corps of the Navy, was signed into law by the President on 8 December 1967.

All law specialists, including women, of the Regular Navy and Naval Reserve were redesignated as judge advocates in the JAG Corps. The statute also provides that, upon request, the Judge Advocate General may designate qualified Marine Corps lawyers as judge advocates, thereby entitling them to perform the same functions as Navy judge advocates, although Marine Corps officers do not become members of the Navy JAG Corps by virtue of such designation.

The JAG Corps is identified by a device (shown in chapter 5) comprised of two gold oak leaves curved to form a semicircle, the center of which is a balanced silver "mill rinde." A mill rinde is the metal bar inserted between the two stones of a mill to bear and guide the upper stone equally in its course—to prevent it from inclining too much on either side—thus ensuring that all the grist is ground evenly. For some six centuries the mill rinde has been construed in the English-speaking world to symbolize equality and justice and has been associated with the legal profession.

The JAG Corps legislation entitles the Judge Advocate General and Deputy Advocate General to the grades of rear admiral (upper half) or

major general, U.S. Marine Corps. The statute also created two positions for Assistant Judge Advocates General and authorized the two officers detailed to those positions to hold the grades of rear admiral (lower half) or brigadier general, U.S. Marine Corps.

FUNCTIONS OF THE JAG CORPS

Military justice is only one of the many areas of responsibility that are handled by Navy lawyers. JAs also are responsible for legal advice in the fields of international law, admiralty, claims, litigation, promotions and retirements, investigations, administrative law, taxation, and legal assistance to service members and their dependents.

Activity in these fields and in military justice is constantly expanding and changing. The largest change, in terms of expanded rights to military people, occurred with passage of the Military Justice Act of 1968. This act expanded the rights of the accused to include lawyer counsel before special courts-martial and inaugurated the use of military judges to preside over special courts-martial.

JAG Corps members serve in the offices of the Secretary of Defense, Secretary of the Navy, Chief of Naval Operations, Chief of Naval Material, Chief of Naval Personnel, Chief of the Bureau of Medicine and Surgery, Chief of Naval Research, Comptroller of the Navy, and the Joint Chiefs of Staff, among others.

Additionally, JAs are assigned to the staffs of the commandants of the various naval districts to handle legal work generated within the district. Locally, they serve on the staffs of fleet, force and type commanders and at many naval bases, stations and schools.

Since 1969, the JAG Corps has been organized into four basic components: the Office of the Judge Advocate General, staff and activity judge advocates, law centers, and a training component. Under that organizational structure, the corps experienced problems in personnel distribution, uniformity of funding and support, and standardization of operations. These problems impeded the corps' efforts to render optimum service.

Following an extensive study of the problem, the Naval Legal Service was established in 1973 with the following mission: To administer the legal services program and provide command direction for all Naval Legal Service activities and resources as may be assigned; and to perform such other functions or tasks as may be related to the Naval Legal Service as directed by the Chief of Naval Operations.

Basically, the mission of the Legal Service Offices is substantially the same as the former law centers. Headquartered in Washington, the Naval Legal Service was authorized 18 offices and 15 branch offices throughout the world. Technically, the offices serve as legal-service centers in areas of major concentrations of naval activities. Within the limits of strength authorizations, they provide a full array of legal services to commands which have no judge advocate assigned. A primary purpose of the reorganization, and the Naval Legal Service, was to bring all trial and defense counsels under the direct authority of the Judge Advocate General, thus making them independent of court-martial convening authorities.

Even though they are relatively new on the scene as an organization, the responsibilities of the Navy JAG Corps continues to expand concomitantly with the passage of legislation by Congress and the increased need for legal services by Navy members.

WOMEN IN THE NAVY

Women are an integral part of the Navy; they are recruited, trained, and assigned under the same regulations as the men and are entitled to the same benefits. They serve in a wide variety of assignments within the United States and in overseas areas. The law does not permit them to serve aboard Navy combatant ships, nor may they serve on aircraft engaged in combat missions.

Although nurses had served with the U.S. Navy for many years, it was not until World War I that women, other than nurses, became a part of the Navy. These Yeomen (F) were enlisted in the Naval Reserve; about 11,000 served in the

United States as well as in Hawaii, France, Guam, and Panama, primarily in stenographic billets. They also served in billets as translators, draftsmen, fingerprint experts, camouflage designers, and recruiters. At the end of the war, all women were released from active duty.

Early in World War II, the Navy again faced acute personnel shortages. Recognizing the fact that women could be used to expedite the war effort, Congress on 30 July 1942 passed legislation authorizing the procurement of 1,000 officers and 10,000 enlisted women for the Naval Reserve. WAVES (Women Accepted for Volunteer Emergency Service) were from the beginning an integral part of the naval service. They have never been a separate corps or an auxiliary. Later, the original legislation was so modified that by the end of World War II, more than 86,000 women were on duty in the continental United States and Hawaii. This spectacular growth was due to the fact that WAVES proved able to take over many more jobs than was at first believed possible. WAVES, officer and enlisted, were on duty in nearly every type of shore activity, including naval air stations, naval hospitals, naval district headquarters, and supply depots. Enlisted WAVES served as yeomen, disbursing clerks, and Link trainer instructors. They packed parachutes, collected weather information, and directed air traffic from control towers.

WAVES composed 55% of the uniformed personnel in the Navy Department in Washington. In "Radio Washington," the nerve center of the entire Navy communications system, women composed 75% of the total allowance. Seventy percent of all naval personnel on duty in the Bureau of Naval Personnel were WAVES. About 13,000 WAVES were in the Hospital Corps, serving in naval hospitals and dispensaries.

Women officers served as line officers in assignments which used their knowledge and education as administrators, language specialists, communicators, and educational service officers.

The outstanding record established by women in the military service during World War II paved the way for passage of the Women's Armed Services Integration Act in 1948; under

this law Navy women became a permanent part of the Regular Navy and Naval Reserve. The basic philosophy underlying the Navy's endorsement and subsequent implementation of the 1948 Act was two-fold—to make available to the Navy the skills of women in noncombat assignments and to maintain within the permanent naval establishment a nucleus of officers and enlisted women upon which to build in the event of a national emergency. The women in the Navy would provide the necessary training, leadership, and experience for the substantial numbers who would be needed to meet the Navy's personnel requirements in the event of mobilization. Officer and enlisted women are now assigned within authorized allowances and are included within the total manpower personnel requirements. As a permanent part of the regular Navy and Naval Reserve, Navy women are no longer officially designated Waves, though the term "Waves" has been retained as a nickname.

In the not too distant past it was believed women were only capable of filling the traditional personnel and administrative billets. Realizing the inequity of this belief, some changes have been instituted to consider women on an equal basis with their male counterparts (figure 10-9). For example, women are now eligible to enter the Naval Academy and are accepted for flight training as jet and helicopter pilots. With expected legislation in the near future, it is evident a single standard for men and women will evolve.

WOMEN OFFICERS

To be eligible for appointment from civilian life to officer candidate status, a woman must be a U.S. citizen, hold a baccalaureate degree from an accredited university, and be between the ages of 19 and 27-1/2 at the time of commissioning. She may be single or married, and may have dependents under 18 years of age. She must meet the mental, moral, and physical standards established by the Navy.

Women officer candidates attend Officer Candidate School at Newport, Rhode Island, and participate in an integrated 19-week curriculum

with male officer candidates. The curriculum is composed of courses in leadership/management, discipline administration, material management (3M), personnel administration, naval warfare, seamanship, piloting, celestial navigation, communications, engineering, human resource management and damage control.

Upon successful completion of OCS the woman officer is commissioned an ensign in the unrestricted or restricted line or Supply Corps and has a four-year obligation to complete. Women commissioned in the Supply Corps receive a period of additional training at the Navy Supply Corps School, Athens, Georgia. For her initial assignment, she may be ordered to a 1-4 year tour of duty within the continental U.S. or overseas. During this period, she may apply for augmentation to the Regular Navy.



134.215

Figure 10-9.—Rear Admiral Fran McKee is the first woman unrestricted line officer promoted to flag rank in the U.S. Navy.

A woman officer is normally screened for postgraduate education in the grade of lieutenant (junior grade) or lieutenant. Women officers selected for postgraduate education participate in the same programs as their male counterparts.

ENLISTED WOMEN

To be eligible for enlistment in the Navy, a woman must be between the ages of 18 and 30, be a high school graduate, and may be single or married.

Enlisted women undergo integrated recruit training with male recruits at Orlando, Florida. Some of the courses included in the 12-week training period are naval orientation, indoctrination in Navy ratings, ship and aircraft identification, naval history, firefighting, and seamanship.

Enlisted women can strike for ratings based on the same criterion as men; there are, however, certain seagoing ratings which are closed to women due to legislation. The majority of recruit graduates are ordered directly to specialized schools for training in the ratings available to them.

Upon completion of training, enlisted women are assigned to naval activities throughout the world. In those assignments they have demonstrated their ability to fulfill the requirements in billets once held exclusively by men (figure 10-10). Some examples of these are aircraft mechanics, electricians, and machinists. This ability has brought about an expanded role for enlisted women in today's Navy.

THE UNITED STATES COAST GUARD

The United States Coast Guard has a dual role that is unique among the services. By statute, organization, and operation, the Coast Guard is a military service and a branch of the Armed Forces always, but normally it operates as a service in the Department of Transportation. In time of war or when the President so directs, it becomes a service in the



134.216

Figure 10-10.—An enlisted woman demonstrating her ability to fulfill the requirements of a billet once held exclusively by men.

Navy, but continues to perform its normal specialized duties.

The Coast Guard is responsible for a large part of all federal operations connected with peacetime maritime activities. In time of war or other national emergency, these peacetime activities take on added importance because of the need for prompt and dependable movement of military personnel and supplies. The Coast Guard assists other Government agencies in special undertakings and missions for which its personnel and facilities are especially qualified.

The Coast Guard maintains a state of military readiness so that it can operate immediately and effectively as a service of the Navy in time of war or when so directed by the President. In order to make such a transition with a minimum of friction, the Coast Guard's peacetime organization, regulations, training,

and customs parallel those of the Navy insofar as operations permit. Personnel receive the same pay and allowances as prescribed for corresponding grades and rates in the Navy.

Whenever the Coast Guard operates as a service in the Navy, its personnel are subject to the laws prescribed for governing the Navy, and precedence between commissioned officers of corresponding grades of the two services is determined by date of rank.

Coast Guard officers and enlisted men are eligible to attend the various schools of instruction maintained by the Navy, Army, and Air Force.

Transfer without compensation therefore of military stores, supplies, and equipment of every character is authorized between the Navy, Army, and Coast Guard. The Secretary of the Navy is authorized to build vessels for the Coast Guard at naval shipyards.

In 1967, the Coast Guard was removed from the Treasury Department (with which it had been associated since 1790) and placed in the newly-created Department of Transportation. When operating in the Department of Transportation, the Commandant of the Coast Guard is responsible to the Secretary of Transportation. When operating in the Navy Department, the Commandant reports to the Secretary of the Navy and the Chief of Naval Operations.

FUNCTIONS OF THE COAST GUARD

Law Enforcement

The Coast Guard is the Nation's foremost maritime safety and law enforcement agency in time of peace. A primary function is the enforcement of all applicable Federal laws upon the high seas and in waters that are subject to the jurisdiction of the United States. This includes the administration of laws and the promulgation and enforcement of regulations for the promotion of safety of life and property, and covers all matters not specifically delegated by law to some other executive agency. Among the more important duties in this field are enforcement of the navigation and inspection laws, anchorage regulations, and laws relating to

internal revenue, customs, immigration, neutrality, and conservation and protection of fisheries and wildlife which require marine or aviation personnel and facilities for effective enforcement.

Port Security

Among the Coast Guard's major duties in the national defense program is port security—safeguarding against destruction or loss from sabotage or other subversive acts, all vessels, harbors, ports, and waterfront facilities in the United States and its territories. This duty includes: prevention of illegal entry from the sea of persons or things inimical to the United States; supervision and control of the loading of explosives and other dangerous cargoes; security checks of merchant marine officers and crewmembers; security screening of waterfront workers to ensure that subversives and other undesirable persons are denied access to restricted waterfront areas and vessels; and patrolling approaches to principal harbors. Figure 10-11 is a class of medium-endurance

cutter capable of cruising 5000 miles at 15 knots.

Search and Rescue

The Coast Guard maintains an established organization of inshore and offshore rescue surface ships, aircraft, lifeboat stations, and rescue coordination centers in each Coast Guard district. It extends medical aid to crews of vessels at sea, cares for and transports shipwrecked and destitute persons, and engages in flood relief work. Figure 10-12 shows a self-bailing, nonsinkable lifeboat used by USCG. In one recent year, the Coast Guard responded to 70,000 calls for assistance with about 4,200 persons saved from death, more than 140,000 other persons were aided, and \$280,000,000 worth of property was saved.

Icebreaking and Ice Patrol

The Coast Guard removes or destroys derelicts, wrecks, and other dangers to



Figure 10-11.—Features of this medium-endurance cutter include a 3-inch gun and helicopter deck aft.



134.142

Figure 10-12.—Among its many duties, the Coast Guard stands ready to rescue shipwrecked survivors. This nonsinkable surfboat enhances that capability.

navigation and, with its icebreaking facilities, assists marine commerce by opening ice-blocked channels and ports. It conducts the International Ice Patrol in the North Atlantic (figure 10-13) to protect shipping from the danger of icebergs, and carries out oceanographic studies.

Ocean Stations

The Coast Guard operates and maintains ocean stations in the North Atlantic and North Pacific. The function of an ocean station is to provide, in addition to meteorological services in ocean areas regularly traversed by ships and aircraft, search and rescue, communication, and air navigation facilities.

Merchant Marine Safety

Functions of the Coast Guard that relate to the merchant marine include the following: investigation of marine disasters and collection of statistics relating to such disasters; approval of plans for construction, repair, and alteration of vessels; issuance of certificates of inspection and permits indicating approval of ships for operations that may be hazardous to life and property; regulation of the transportation of explosives and other dangerous articles on vessels; licensing and certifying of officers, pilots, and seamen; enforcement of manning requirements for the mustering and drilling of crews; suspension and revocation of licenses and

certificates; licensing of motorboat operators; shipment, discharge, protection, and welfare of merchant seamen; and the promulgation and enforcement of rules for lights, signals, speed, steering, sailing, passing, anchorage, movement, and towlines of vessels.

Aids to Navigation

The Coast Guard establishes and maintains marine aids to navigation such as lighthouses, lights, radio beacons, radio direction-finder stations, buoys, unlighted beacons, and VTS

(Vessel Traffic Services), as required to serve the needs of commerce and of the Armed Forces. It maintains the United States system of loran (long-range aid to navigation) to serve the needs of the Armed Forces, mariners, and maritime airborne commerce.

The Coast Guard maintains about 40,000 aids to navigation in the United States, its territories and possessions, the Trust Territory of the Pacific Islands, and at overseas military bases. These aids include some 60 loran stations, 350 manned light stations, and 30 offshore light structures.

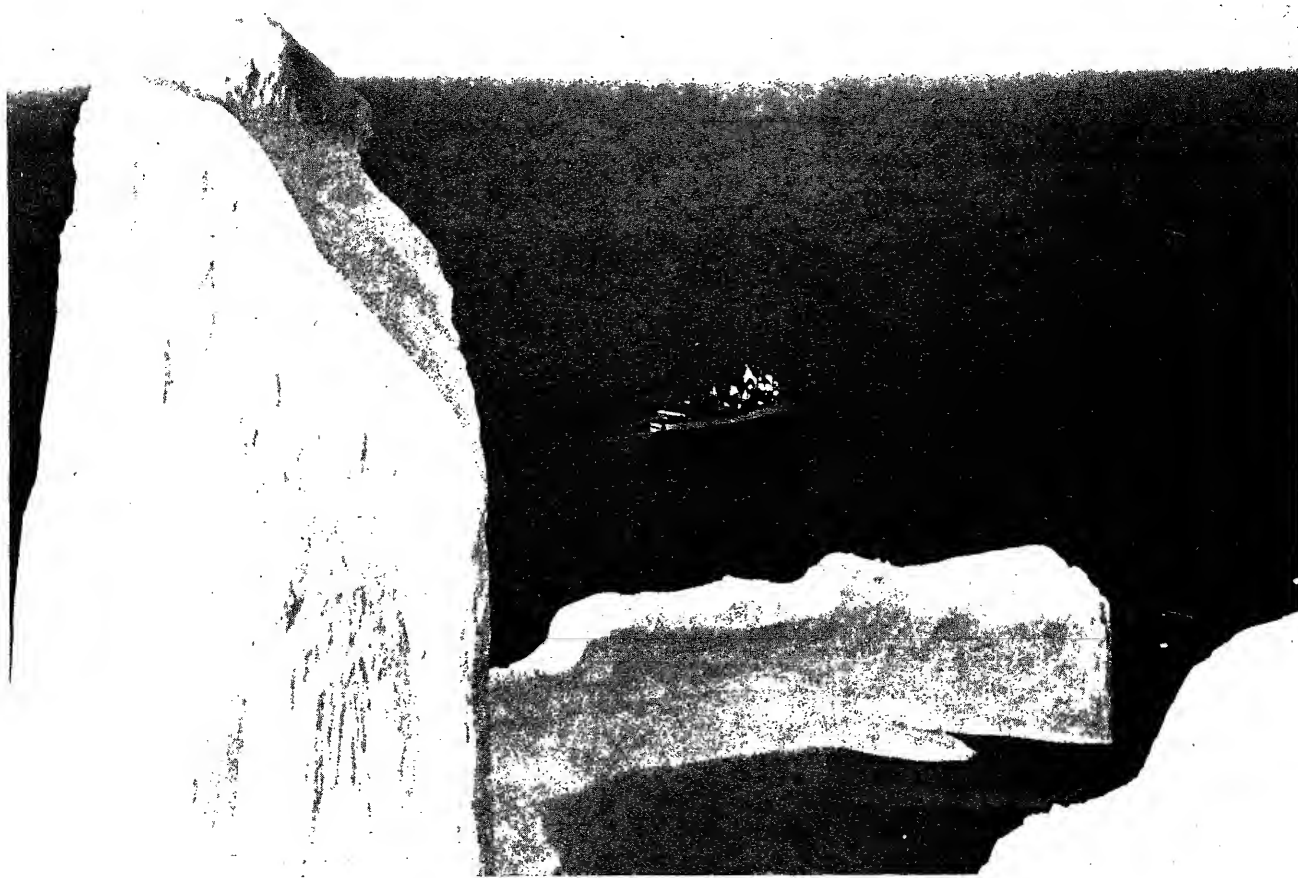


Figure 10-13.—Infesting Arctic waters, monster chunks of ice await unsuspecting ships. The SS Titanic ripped out her bottom on an ice floe, which sank her in 1912 with the loss of 1500 souls. To prevent a recurrence of that disaster

Marine Environmental Protection

Although the Coast Guard has been enforcing our fisheries laws since 1793 to conserve marine life, the increased pollution in and near our coastal waters required increased surveillance and new techniques to combat this serious threat to our marine environment. With the enactment of the Federal Water Pollution Control Act of 1972 a National Strike Force (NSF) was formed. This force consists of three 18-man teams, one each on the Pacific, Atlantic, and Gulf Coast, composed of people who are specially trained and equipped for antipollution work. Not only are these teams capable of handling domestic problems, but can also be deployed at a moment's notice anywhere in the world when the need arises.

ORGANIZATION AND ADMINISTRATION OF THE COAST GUARD

The Commandant of the Coast Guard is the chief of the service and its senior officer, with the rank of admiral. He is appointed by the President for a term of 4 years, from the active list of line officers who hold a permanent commission as commander or above and who have completed at least 10 years' service as commissioned officers in the Coast Guard. From the Coast Guard Headquarters in Washington the Commandant directs the policy, legislation, and administrative affairs of the service, under the general supervision of the Secretary of Transportation.

The basic organization pattern of the Coast Guard reflects an assignment of military command and operational and administrative responsibility and authority among components in Headquarters, in district offices, and in individual units in the field. Duties of the Coast Guard in most instances actually are performed by individual operating units, such as ships and aircraft; air, light, radio, and lifeboat stations; marine inspection offices; and individual logistic units such as recruiting, receiving, and training stations, and bases, depots, and repair shops.

For the purposes of administration the United States and its territories and possessions

are divided into 12 districts, each under a district commander. The Commandant, assisted by the headquarters staff, plans, supervises, and coordinates activities within the various districts and gives immediate direction to those special service units in the field which report directly to headquarters.

The district commander, assisted by his staff, provides regional direction and coordination in the performance of duties by individual field units. The chain of military command and operational and administrative control ordinarily runs from the Commandant to the district commander, and in turn from the district commander to the commanding officer or officer in charge of a particular operating logistic unit.

HISTORY AND ACCOMPLISHMENTS OF THE COAST GUARD

Created by Act of Congress on 4 August 1790 at the request of the first Secretary of the Treasury, Alexander Hamilton, as a seagoing service of 10 boats to be employed "for the security of the revenue," the Coast Guard was variously known by such names as the Revenue Marine, Revenue Service, and Revenue Cutter Service. As early as 1799 Congress provided that the cutters should, whenever the President directed, cooperate with the Navy. On 28 January 1915, the President signed a law consolidating the Life Saving Service and the Revenue Cutter Service, both of the Treasury Department, into a single service of the Treasury under the name of the Coast Guard.

Early Accomplishments. The early Revenue Marine found itself invested with many other duties besides enforcing the revenue laws. The enforcement of state quarantine statutes, the suppression of piracy and the slave trade, and the enforcement of neutrality laws and of immigration laws were included in its manifold undertakings.

Eight vessels of the Revenue Marine were assigned to cooperate with the newly organized Navy in 1798 in the quasi-war with France.

To enforce President Jefferson's 1807 embargo, 12 new vessels were authorized in

1809, and these helped to carry the naval burden in the War of 1812. In this war the Revenue Marine helped to protect our coastal trade by providing convoy between ports. It attacked or warded off attacks of privateers and armed flotillas sent out by British squadrons ranging freely along our coasts, and it captured hostile armed merchantmen.

When the Seminole War broke out in 1836, eight revenue cutters cooperated with the Army and Navy in blockading rivers, carrying dispatches, transporting troops and ammunition, and providing landing parties for the defense of settlements menaced by the Indians.

Eleven cutters participated in the Mexican War from 1846 to 1848, principally in cooperation with the armies under Taylor and Scott.

In 1849 Captain Frazer, the first military commandant, found San Francisco a difficult station with the inrush of the gold-seeking '49-ers. There were some 600 vessels riding at anchor, many with insubordinate, lawless crews. As yet there were no civil tribunals, and Captain Frazer and his aides worked day and night enforcing the revenue laws and helping shipmasters suppress mutiny and violence.

Life Saving Service. One of the Coast Guard's major activities has always been the assisting of vessels in distress and the saving of life and property at sea. Andrew Jackson's Secretary of the Treasury first designated the Revenue Marine for this duty in 1831 when he detailed seven cutters to patrol areas near their stations and perform such functions. The first appropriation for saving life from shore was made by Congress in 1847. By 1847 there were lifesaving stations at many points along the coast of New England, the South Atlantic and Pacific coasts, and the Great Lakes. Lifesaving medals were authorized, personnel matters reorganized, beach patrols and signals introduced, and the technique of using the breeches buoy developed.

In 1854 the Life Saving Service had been established as a separate bureau of the Treasury. Officers of the Revenue Cutter Service were assigned to inspect, drill, and discipline the crews of the lifesaving stations. Through the combined efforts of the two services, over

200,000 lives and more than a billion dollars worth of property were saved in the years between 1871 and 1941.

The Civil War. The revenue cutter *Harriet Lane*, one of a group of ships sent to the relief of Federal forces at Fort Sumter, was present during the bombardment of that fort. Just prior to the bombardment, *Harriet Lane* hailed the steamer *Nashville* to show her colors. When *Nashville* failed to do so, *Harriet Lane* fired a shot across her bow and is credited with firing the first shot from any vessel during the Civil War.

The *Miami* was Lincoln's personal transport from which he landed to reconnoiter on Confederate soil the night before the capture of Norfolk. Other cutters rendered important services in the waters of North Carolina and cooperated with the naval forces in the gunboat flotilla in the Chesapeake.

Activities from 1867 to 1917. The revenue cutter *Lincoln* was the first American ship to explore Alaskan waters following our purchase of that territory from Russia in 1867. From the beginning, Alaska was the particular responsibility of the Coast Guard. Its cutters were in Alaskan waters from early May until late December each year, rendering aid to shipping, caring for the shipwrecked, and assisting the natives. Public Health surgeons detailed to the cutters of the Alaska Patrol prescribed for and aided the sick.

Organized training was initiated in 1876. In that year, Congress provided for the appointment of cadets to fill the lower commissioned grades, and the first training ship, *Dobbin*, was outfitted as a floating school of instruction.

In cooperation with the Navy, 13 cutters took part in the Spanish-American War; 8 were with Sampson's fleet on the Havana blockade, 1 was with Dewey's fleet, and 4 worked with the Navy on the Pacific coast.

Following the sinking of the *Titanic* by collision with an iceberg, the International Ice Patrol was initiated by the United States in 1912. Its purpose is to locate icebergs and field ice nearest to transatlantic lanes of ocean travel

and to warn ships of their locations. The patrol also conducts oceanographic research.

Coast Guard in World War I. On 6 April 1917, when we declared war on Germany, the Navy was augmented by 15 cruising cutters, over 200 commissioned officers, and 5000 warrant officers and enlisted men of the Coast Guard. They were entrusted with the hunting of submarines and raiders and with guarding the transport of troops. A squadron of Coast Guard cutters, based at Gibraltar, performed escort duty between that port and the British Isles. The cutter *Tampa*, bound for Milford Haven after escorting a convoy to Gibraltar, disappeared during a storm on the night of 26 September 1918, leaving no trace other than some floating wreckage. Over 100 Coast Guardsmen were among the 130 persons lost. In proportion to its strength, the Coast Guard suffered the highest losses of any of the armed services in World War I.

Development Between Wars. Following World War I the experiment of Prohibition added many problems to the Coast Guard's work of preventing smuggling. Enforcement of the Prohibition law was unpleasant and often dangerous, but funds were allotted for expansion to an extent never before equalled. The service was augmented and greatly improved, especially in the fields of communications and intelligence.

In 1932 the Coast Guard Academy was established on the Thames River at New London, Connecticut.

On 1 July 1939 the Lighthouse Service of the Department of Commerce was transferred to the Coast Guard. Its functions are the construction, operation, maintenance, repair, illumination, and inspection of all aids to navigation, including lighthouses, lightships, buoys, beacons, fog signals, and daymarks.

In 1939 Congress created the Auxiliary. This was a voluntary nonmilitary organization of civilians, intended to train and instruct those using the high seas and navigable waters of the United States. Another purpose was to secure the cooperation of yachtsmen and other small-boat owners in the observance of the laws and the adoption of safety devices on their

boats. Later some 3000 of these members of the Auxiliary with their boats became available as "coastal pickets" when enemy submarines began to prey on our coastal shipping.

The purpose of the Auxiliary today is to assist the Coast Guard in promoting marine safety and effecting rescues; in promoting efficiency in the operation of motorboats and yachts; in fostering a wider knowledge of, and better compliance with all regulations governing the operation of motorboats and yachts; and in facilitating the operations of the Coast Guard.

When the President proclaimed our neutrality on 5 September 1939 in the war which had broken out in Europe, the Coast Guard assumed a wide field of responsibility in the prevention of unneutral acts by merchant vessels. A systematic and extensive patrol by aircraft, vessels, and coastal stations was carried out all along our coasts. Radio apparatus aboard merchant vessels of belligerent nations, while within our waters, was inspected and sealed.

On 27 June 1940 the President invoked by proclamation and delegated to the Secretary of the Treasury his powers under the Espionage Act of 1917. These powers included the right to govern the anchorage and movement of all vessels in United States waters; to inspect them and place guards on them; to take full possession and control of them, removing the officers and crew and all other persons not specifically authorized by him to go or remain on board; to secure them from danger or injury; and to prevent damage to harbors and waters of the United States. Shortly afterward, the Dangerous Cargo Act gave the Coast Guard, jointly with the Bureau of Marine Inspection and Navigation of the Department of Commerce, wide jurisdiction over every vessel on the navigable waters of the United States carrying specified high explosives or other dangerous cargo. This marked the beginning of the Coast Guard's wartime port security activities designed to protect navigable waterfront property and shipping.

The Coast Guard Reserve Act of 1941 established the Coast Guard Reserve which, during the war years, grew to a considerable size. Numerous volunteer port security forces were organized by utilizing temporary members of

the Reserve in all the major ports to guard wharves, shipyards, and waterfront property on a part-time basis and with all services donated to the Government.

On 1 November 1941 the entire Coast Guard was ordered to operate as part of the Navy. Coast Guard districts automatically went under control of the naval districts in which they were located. On 30 March 1942 the Coast Guard was designated as a service of the Navy Department, to be administered by the Commandant of the Coast Guard under the Secretary of the Navy, in accordance with general directives issued by the Commander in Chief (the President), the Secretary of the Navy, and the Chief of Naval Operations. Before the declaration of war, the larger cutters and patrol boats capable of offshore operations had been assigned to the fleet, to sea frontiers, or task forces for convoy, antisubmarine, and patrol duty.

Coast Guard in World War II. Shortly after the declaration of war on 8 December 1941, Coast Guard vessels got into action. On 9 May 1942 the cutter *Icarus* sank a German U-boat and took 33 prisoners, including the submarine's commanding officer. The cutter *Campbell* was the next Coast Guard vessel to register a definite kill in the gruelling antisubmarine war. Postwar investigation confirmed the sinkings by Coast Guard vessels of seven enemy submarines.

The Coast Guard acquired a number of civilian craft, including sailboats as well as powerboats, that were capable of remaining at sea for at least 48 hours. Some carried depth charges and were armed with machineguns; all were equipped with radios. They functioned as coastal pickets and their duties were to observe and report actions of all hostile submarines, surface craft, and air forces, and to attack and destroy when their armament permitted. They also conducted rescue operations offshore.

New scientific developments aided the Coast Guard in performing wartime duties. In addition to loran and radar, racon and anrac were utilized. Racon, a fixed frequency transponder that gives distance and bearing within 120 miles of a plane or ship, can be used for coastwise piloting in peace. Anrac is a form of remote radio control employed to light and extinguish electrically lighted unattended beacons and operate fog signals.

During 1942 Coast Guard vessels of 65 feet or longer increased in number from 3732 to 8357. This expanded fleet, together with the Coast Guard's regular cutters, brought in over 1500 survivors of enemy torpedoings along the Atlantic Coast, Gulf of Mexico, and in the Caribbean. They were assisted by Coast Guard planes, which numbered around 200 during the war. Lifeboat stations along the Atlantic Coast picked up hundreds of survivors in lifeboats after they had been spotted by Coast Guard aircraft on antisubmarine patrols off the coasts. The planes guided fishing vessels and other craft to submarine victims in the water. As the submarine menace along our coasts subsided, most of the 24,000 Coast Guardsmen that had been patrolling 40,000 miles of our coast were released for sea duty. Temporary reservists and SPARS (the Coast Guard's counterpart to the WAVES) relieved many others for more active service in the frontline of amphibious and antisubmarine attack.

A total of 351 Navy vessels were manned by Coast Guardsmen. These included destroyer escorts, troop transports, cargo vessels, tankers, landing craft, and a variety of patrol craft. In addition, many other types of Navy ships had Coast Guardsmen in their crews. The Coast Guard also manned 291 Army vessels, including freight and supply vessels, large tugs, tankers, and freight boats which constituted supply echelons for Southwest Pacific and Philippine Army bases. Out of a total of 1035 Coast Guardsmen who died aboard ship, 572 were killed in action. Altogether over 1800 died in the war.

Return to Peacetime Duties. Following World War II, the Coast Guard was demobilized until it reached a low of 18,687 officers and men in 1947. The Korean conflict, commencing in June 1950, had tremendous impact on the Coast Guard even though it was not transferred to the Navy as in previous emergencies.

The impact of defense mobilization was reflected in added operational demands for all phases of the peacetime missions of the Coast Guard. Presidential Executive Order 10173 instituted a port program designed to protect ships, harbors, ports, and waterfront facilities. To carry out the program, the Coast Guard assigned Captains of the Port to all major cities.

The Coast Guard operated five weather stations in the Pacific during the conflict to provide more reliable weather data, and a number of loran (long-range aids to navigation) transmitting stations were built to provide better ship and aircraft navigation in the area.

Faced with a problem of enemy infiltration along the long, irregular coastline of the Republic of Vietnam in 1965, the Navy turned to the Coast Guard for assistance. Highly maneuverable Coast Guard 82-foot patrol craft were determined to be the best vessels for use in combating the Viet Cong infiltrators, so 17 heavily armed cutters were sent to Vietnam to form the backbone of the Navy's operation "Market Time."

An additional 9 cutters were later sent to Vietnam, and the 26 vessels were divided into 3 squadrons which patrolled the entire coast, boarding suspicious vessels and searching for weapons, ammunition, and other contraband.

A major encounter with the enemy took place in May 1966 when the cutter *Point Grey* spotted two bonfires on the beach which appeared to be signals for infiltrators. The *Point Grey* waited in darkness for the enemy to make a move, and after making radar contact with an unidentified vessel, the cutter went into action and forced it aground.

The enemy ship, a 125-foot trawler, was ripped apart by the *Point Grey* and other cutters and aircraft. Salvage crews later removed 15 tons of weapons and ammunition from her charred and broken hull.

In mid-1967, in response to a Navy request the Coast Guard sent five of its larger cutters into action to strengthen Vietnam coastal defenses. By the end of the conflict nearly all major Coast Guard cutters had been on a Vietnam deployment.

On April 1, 1967, after nearly 177 years in the Treasury Department, the Coast Guard was transferred to the new Department of Transportation (DOT).

The Coast Guard today is always mindful that it is a branch of the Armed Forces. Units and personnel are trained to meet or exceed Navy fleet performance standards. Energy restrictions during 1974 curtailed Navy refresher training for 45 cutters, but particular emphasis was placed on refresher training for the crew of

high-endurance cutters. Present policy calls for all cutters of the 378-foot *Hamilton* class to undergo four weeks of training annually.

The Coast Guard Today. Today's peacetime Coast Guard is adding exciting new pages to its history almost daily in search and rescue missions, prevention and cleanup of pollution, by fighting crime on the high seas, and in the protection of U.S. fisheries.

The numerous missions of the Coast Guard are carried out by 37,000 military and 6,000 civilian personnel. From scattered bases, they operate a fleet of 250 ships, 160 aircraft, and more than 2,000 small craft. They also maintain more than 45,000 aids to navigation. Others are busy ensuring the safety of the merchant marine, recreational boaters, and the Nation's bridges. America's entire icebreaking fleet, which operates in the Arctic, Antarctic, and on the Great Lakes during the winter season, flies the Coast Guard ensign.

More than 11,700 Coast Guard reservists augment regular forces in peak periods and emergency situations. Last year reservists provided approximately 2.8 million man-hours of support to the regular Coast Guard. Additionally, 45,000 citizen volunteers of the Coast Guard Auxiliary lend valuable assistance to the Coast Guard.

The prevention of smuggling, another duty that dates back to the Coast Guard's earliest days, is still a major mission and very much in the limelight. Coast Guard forces are extensively involved in the Gulf of Mexico and the Caribbean assisting the Drug Enforcement Agency and the Bureau of Customs in operations designed to stem the flow of narcotics into the country.

In addition to these traditional assignments, the Coast Guard has recently undertaken major new missions, especially in the area of environmental protection. Three strategically located "strike teams" respond to about 60 major pollution incidents each year.

Looking to the future, the Coast Guard is planning for increased offshore law-enforcement patrols with the enactment of the 200-mile maritime economic zone. The new zone will equal about one-third the size of the Nation.

UNITED STATES MERCHANT MARINE

A nation's merchant ships are an important part of her seapower. They are far more than a means of transportation. They make the entire world a market for our products, thus contributing to our economic well-being. They bring back to our ports the materials that we lack, and that are essential to our industries. Their visits to remote ports convey American ideas and ideals to foreign nations.

During a war, merchant shipping provides a vital link between the fighting force overseas and the production army on the homefront.

American merchant shipping has experienced some extreme stages of expansion and decline. It flourished in the early days of the republic while Europe was at war. Its peak was reached in the 1850's, due in part to the superiority of American-built clipper ships. Following the Civil War, a period of decline set in. American expansion at this time was inland, so that capital shifted away from shipping. Great Britain was better equipped to build iron-hulled steamships, and during this period she constructed them in large numbers. As a result, at the start of World War I our tonnage was about one-quarter that of Great Britain. While our exports and imports continued to grow, most of them were carried in foreign vessels, U.S. flagships carrying only 10%.

World War I brought about a brief, frenzied attempt to remedy this situation, and as a result of the increased shipbuilding during this time, by 30 June 1921 we had 2752 steamships of 1000 gross tons or over. One permanent achievement in this period was the establishing of a network of subsidized American lines to the principal ports of the world. It was not until 1936, however, when Congress passed the Merchant Marine Act providing for the payment of construction and operating differential subsidies, that American ship owners were encouraged to consider expansion.

The Merchant Marine Act of 1936 established a Maritime Commission to administer the Act. After a survey of the country's need for ships, the Commission

suggested a building program of 500 ships over a 10-year period. From 1939 to 1941, 185 ships were built. The Japanese attack on Pearl Harbor shifted shipbuilding into high gear.

To offset heavy submarine losses, 2708 large but relatively slow Liberty ships were turned out from 1939 to 1945, principally in new, improvised yards. In addition, 3069 other merchant-type ships were built, for a total of 5777. Close cooperation with naval authorities had resulted in types of ships ready for fast production and designed to meet the auxiliary needs of the United States Navy and to fit war-use specifications.

Many faster ships designed under the Maritime Commission's long-range policy had been built by shipyards, encouraged by the nation's new maritime program. Building schedules were stepped up.

It was soon apparent that the immense shipbuilding phase of its duties would be a full-time job for the Maritime Commission and that an agency was needed to handle wartime merchant fleet operational problems. Such an agency, the War Shipping Administration (WSA), was formed in February 1943.

The responsibility of WSA included the purchase or requisition of vessels for its own use or for use by the Army, Navy, and other Government agencies; the repairing, arming, and installation of defense equipment on WSA-controlled vessels and Allied vessels under lend-lease provision; and the conversion of vessels to troop transports, hospital ships, and for other special purposes. Their responsibility embraced also training and providing shipboard personnel; operation, loading, discharging, and general control of the movement of the ships; administering marine and war-risk insurance laws and funds; and control of port and terminal facilities, forwarding, and related matters. With all merchant ships subject to WSA requisition, qualified ship operators became operating agents for the United States Government. Thus, although the American maritime industry was placed under wartime orders, it remained intact in its organization.

The full story of the accomplishments of the merchant marine in World War II is related in

The United States Merchant Marine at War, a report submitted in January 1946 to the President of the United States by Vice Admiral Emory S. Land, Chairman of the Maritime Commission and War Shipping Administrator. A brief summary will serve to indicate the scope of merchant marine activity in World War II.

The summit was attained in the hazardous Murmansk Run. The war with Japan prevented full use of our World War I shipping lane to Russia through the port of Vladivostok. The Mediterranean was closed as a gateway to Russian ports; the Persian Gulf entailed a long voyage around the Cape of Good Hope. The most direct route was through the Straits of Denmark between Iceland and Greenland, then around the North Cape of Norway into Murmansk. This was the Murmansk Run, a voyage that combined all the elements of danger from man and nature alike. But the slow, gray convoys made that trip, through icy fogbound seas, where they were exposed to attack by dive bombers, surface raiders, and submarines moving out from the Nazi-held fjords of Norway. Even after they had reached their destination and were unloading their cargo, they were subjected to attack by planes of the Luftwaffe.

The merchant marine carried millions of tons of cargo across every ocean. These cargoes were as varied as the sealanes they traveled and ranged in size from pins to locomotives. Strategic materials were sometimes brought back in these ships, as were goods that were considered essential for civilian use.

By the end of the war with Japan the WSA-controlled fleet numbered 3,956 ships, with a deadweight tonnage of about 40,750. Some 54% of the vessels under WSA control consisted of the well-known Liberty ships, with a speed of about 11 knots. Construction of Victory ships began in 1944, when turbines became available for merchant ships. The Victory ships had approximately the same tonnage as the Liberty's (about 11,000 tons), but its more modern propulsion machinery made it a faster ship, with a speed of 15-17 knots.

Other ships in the merchant fleet include the C-types, which vary from coastal vessels of

9,000 deadweight tons to freighters of more than 13,000 tons. In addition, there are special types—primarily freighters, combination passenger-cargo ships, refrigerator ships, and bulk carriers.

To meet the need for large, fast cargo ships capable of service in forward areas in wartime, a need pointed up by the demands of the Korean War, the Maritime Administration of the U.S. Department of Commerce undertook a construction program of 35 ships of the Mariner class.

MERCHANT MARINE TRAINING

The program for training personnel for service in the merchant marine was established in 1938 by the U.S. Maritime Commission. Training stations and supplementary training ships were established on the Atlantic, Gulf, and Pacific coasts. In postwar years merchant marine training became a function of the Maritime Administration, under which a peacetime training program now functions through the U.S. Merchant Marine Academy and state maritime academies.

The Merchant Marine Academy trains American citizens, high school graduates and under 21 years of age, to become officers in the merchant marine. The course is 4 years: the first year at the Academy, located at King's Point, New York, the second year aboard merchant ships, and the last 2 years at the Academy. Graduates receive a merchant marine license as third mate or third assistant engineer and are eligible to apply for a commission as ensign in the Naval Reserve. The Academy grants a bachelor of science degree.

In addition to the academy at King's Point, the Maritime Administration supervises five merchant marine schools in Maine, New York, Massachusetts, California, and Texas. These state institutions operate partially with the aid of Federal funds under Federal requirements. Upon graduation, students receive a license similar to those awarded King's Point graduates and upon individual application and acceptance, a commission as ensign in the Naval Reserve.

PEACETIME ORGANIZATION

The Merchant Marine Act of 1936 in its Declaration of Policy states:

“It is necessary for the national defense and development of its foreign and domestic commerce that the United States shall have a merchant marine (a) sufficient to its domestic waterborne commerce and a substantial portion of the waterborne export and import foreign commerce of the United States and to provide shipping service on all routes essential for maintaining the flow of such domestic and foreign waterborne commerce at all times, (b) capable of serving as a naval and military auxiliary in time of war or national emergency, (c) owned and operated under the United States flag by citizens of the United States insofar as may be practicable, and (d) composed of the best-equipped, safest, and most suitable types of vessels, constructed in the United States and manned with a trained and efficient citizen personnel. It is hereby declared to be the policy of the United States to foster the development and encourage the maintenance of such a merchant marine.”

The United States Maritime Commission, which came into being under the act of 1936, was created for the purpose of carrying out this policy.

Since 1961, responsibility for administering Federal programs concerned with the promotion and development of the merchant marine has been vested in the Federal Maritime Commission, an independent regulatory agency, and the Maritime Administration in the Department of Commerce.

The Federal Maritime Commission exercises regulatory control over rates and practices of ocean shipping lines, and reviews agreements among ship operators and freight forwarders for evidence of discriminatory practices.

Located within the Maritime Administration, the Maritime Subsidy Board holds hearings to decide whether charter of war-built, dry-cargo, Government-owned vessels is necessary to provide essential services for which privately owned tonnage is not available or unavailable at reasonable rates and conditions. The Maritime Subsidy Board also makes determinations regarding the recipients and amounts of ship construction and operating subsidies.

The Maritime Administration carries out the administration of subsidies and directs programs of shipbuilding, ship operation, and reserve fleet maintenance when required in the national interest. Through the National Shipping Authority, established in March 1951, it operates vessels through general agents appointed from private shipping companies, to supply services such as the carrying of military goods when privately owned or chartered vessels are not available at reasonable rates.

CHAPTER 11

UNITED STATES MARINE CORPS

The U.S. Marine Corps consists of not less than three combat divisions and three aircraft wings, and such other land combat, aviation, and other services as necessary to support them. It is organized, trained, and equipped to provide Fleet Marine Forces of combined arms, together with supporting air components, for service with the fleet in the seizure or defense of advanced naval bases, and for the conduct of such land operations as may be essential to the prosecution of a naval campaign. In addition, the Corps provides detachments and organizations for service on ships of the Navy; provides security detachments at naval stations, naval bases, and embassies and legations in foreign countries; and performs such other duties as the President may direct.

The Corps has primary responsibility for developing, in coordination with the other military services, the doctrines, tactics, techniques, and equipment employed by landing forces in amphibious operations.

The peacetime regular strength of the Corps is limited to a maximum of 196,000 personnel.

The Commandant of the Marine Corps has coequal status with the members of the Joint Chiefs of Staff in matters of direct concern to the Corps. He is responsible for its administration, discipline, internal organization, training, efficiency, and readiness; for the operation of its material support system; and for the total performance of the Corps. When performing these functions, the Commandant is responsible directly to the Secretary of the Navy; he is not a part of the command structure of the Chief of Naval Operations. There is a close cooperative relationship, however, between

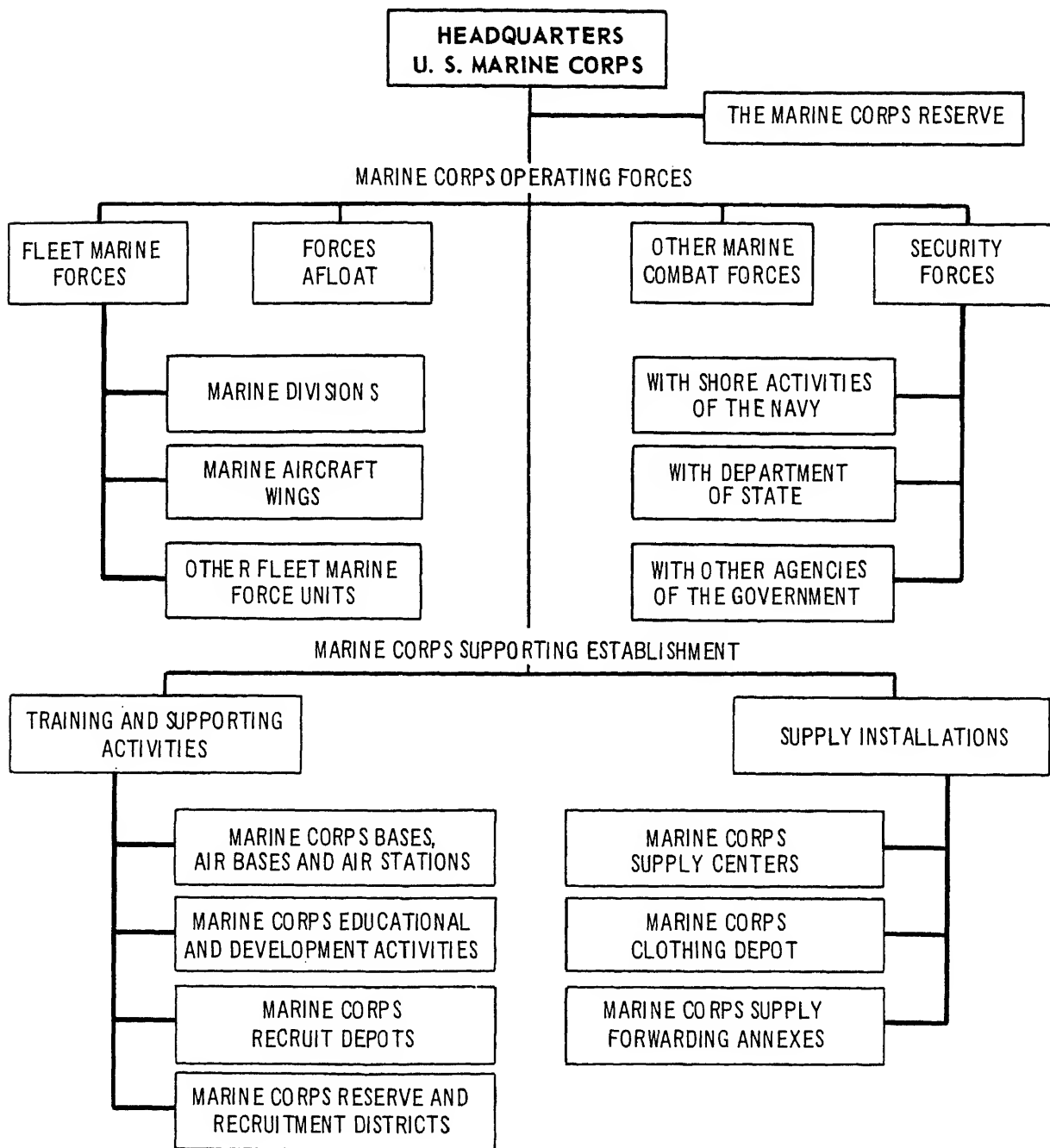
CNO, as the senior military officer of the Department of the Navy, and the Commandant of the Marine Corps, who has command responsibility over that organization. The Commandant is responsible to CNO for the readiness of those elements of the operating forces of the Marine Corps assigned to the Operating Forces of the Navy. Marine Corps forces, when so assigned, are subject to the command exercised by CNO over the Operating Forces of the Navy. Units also may be assigned under the operational control of unified or specified commanders, as part of the naval components within those commands.

The Commandant of the Marine Corps advises the Secretary of the Navy on all matters pertaining to the Corps.

The Chief of Naval Material is responsive to the Commandant in meeting the material support needs of the Marine Corps that are to be provided by the Naval Material Command.

Figure 11-1 shows the general organization of the Corps. Major elements of Marine Corps operating forces normally are assigned to Fleet Marine Forces, which are integral parts of the fleets, having the status of type commands.

Bureaus and offices of the Navy Department perform certain technical and service functions for the Marine Corps, just as they do for the Navy. For example, medical services are provided by the Bureau of Medicine and Surgery. Legal advice and legislative services are provided by the Judge Advocate General of the Navy. Navy personnel for service in Marine Corps units are provided by the Bureau of Naval Personnel. Reciprocally, the Marine Corps provides security detachments for the protection



134.143
 Figure 11-1.—General organization of the U.S. Marine Corps. The illustration does not delineate specific command structure.

of bases and stations of the Navy, units (including squadrons) for service on Navy vessels, and Marine Corps personnel for duty with those bureaus and offices performing significant service for the Marine Corps.

The Marine Corps Supporting Establishment includes the Marine Corps recruit depots at San Diego and Parris Island, the Marine Corps Development and Education Command at Quantico, the Marine Corps Recruiting Service, the Marine Corps supply installations, and the various Marine barracks and Marine Corps air stations.

The relationship between the Secretary of the Navy and the Commandant of the Marine Corps is direct. When the President orders units of the Marine Corps to perform duties that are not under the jurisdiction of the Secretary of the Navy, the President may require the Commandant to report to some other department head for that purpose. As an example, during World War I the President directed the Commandant to report to the Secretary of War with respect to Marine Corps units detached for service with the Army. In 1921 and again in 1926 the Commandant, at the

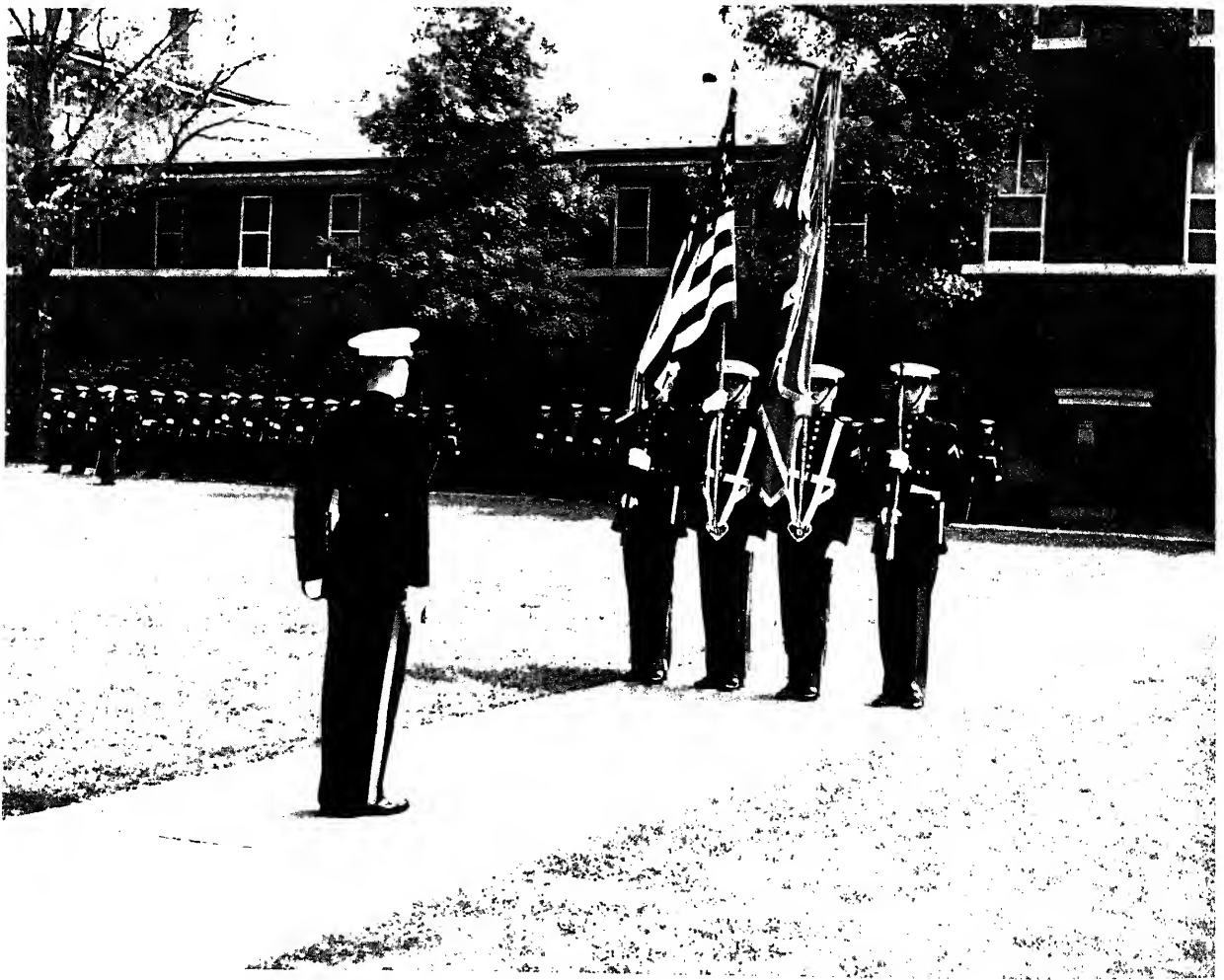


Figure 11-2.—Rugged in combat, U.S. Marines on parade present the perfect example of proper military bearing. This ceremony is taking place at the Marine Barracks, Washington, D.C.

134.54

direction of the President, reported to the Postmaster General with respect to Marine Corps units ordered to guard the U.S. mail.

MARINE CORPS TRADITION

The U.S. Marine Corps, perhaps to a greater degree than any other military group, demonstrates the power of pride in tradition to unify and motivate a fighting force. Almost as soon as he becomes a member of the organization, the Marine learns that his traditions are as much a part of his equipment as his pack or his rifle. These traditions have been growing since the Continental Marines were organized on 10 November 1775, the birthday of the Corps. Marine Corps tradition has many phases: discipline, devotion to duty, leadership, loyalty, self-sacrifice, versatility, and pride in a job well done (figure 11-2). Reflections of Marine tradition can be found in the uniform, the insignia, the words of the "Marines' Hymn," and the nicknames earned through the years.

The familiar emblem of the eagle, globe, and anchor (figure 11-3), officially adopted in 1868, is symbolic of worldwide service in a seagoing force—the "soldiers of the sea." The spread eagle, the national symbol, holds in its beak streamers that bear the Marines' motto, *Semper Fidelis* (Always Faithful), officially adopted in 1883.

According to tradition, the origin of the "Marines' Hymn" dates back to the Mexican War when an unknown Marine on duty in Mexico wrote the first verse, "From the Halls of Montezuma to the Shores of Tripoli" (figure 11-4).

The Marine Corps march, "*Semper Fidelis*," was composed in 1888 by John Philip Sousa, at that time leader of the Marine Band. The band played for the first presidential inauguration in Washington in 1801 and became known as "the President's own" during the early years of the 19th century, a title it holds today.

The term "leatherneck" dates back to the time when Marines wore leather stocks, or collars, to improve military bearing by forcing the wearer to keep his head up. The nickname



134.55

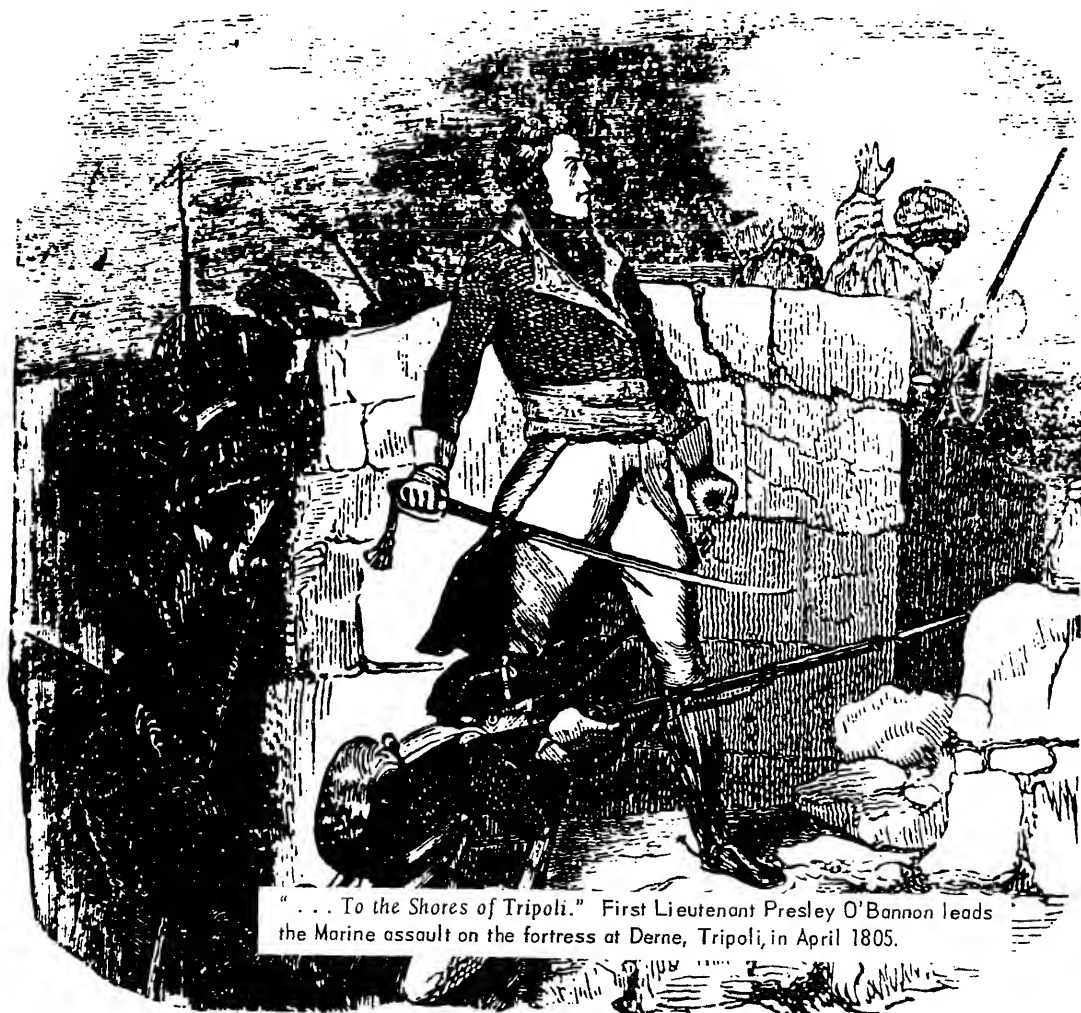
Figure 11-3.—Emblem of the U.S. Marine Corps.

"Devil Dogs" reputedly was assigned to Marines by the Germans in World War I after the action at Belleau Wood, in which the Fourth Marine Brigade distinguished itself. The German reports were said to have referred to the Marines as *Teufelshunden*.

HISTORY OF THE CORPS

Fighting men have been assigned to ships since the time of the Phoenicians, about five centuries before the Christian Era. The Greeks and Romans followed this practice, and later the British. In 1664, during the reign of Charles II, the Duke of York and Albany's Maritime Regiment of Foot was organized, from which the Royal Marines are descended.

In 1740 the American Colonial Marines came into being, and served under Admiral Vernon of the Royal Navy, chiefly in the West Indies. Lawrence Washington, half-brother of George Washington, was an officer in the



134.144

Figure 11-4.—(continued) . . . and in the war with the Barbary Powers. An official version of the Hymn was issued in 1929.

from *Alfred v. Glasgow* (1776) to *Alliance v. Sybil* (1783). Not to be mistaken for Continental Marines were the many Marines in various state navies of the revolutionary era.

After independence was won, the Marines, like the rest of the Continental forces except for one small Army unit, went out of existence. During the trouble with Algerian pirates in 1794, Marines were authorized by Congress to complement the small naval force contemplated at the time. When the crisis passed without war, however, naval construction was cut back to

such an extent that the enlistment of Marines was never begun.

Marines were not actually recruited until the revival of the Navy in 1798 during the controversy with France over American neutrality at sea. After the separation of the Navy from the War Department in April 1798, the Marines already in service, as well as those to be raised thereafter, were brought into one corps by the act of 11 July 1798.

During the quasi-war resulting from the diplomatic impasse with France, the Marines



"From the Halls of Montezuma . . ." General Quitman leads his battered battalion of Marines into Mexico City on 14 September 1847, ending the Mexican War with American victory. The red strip on the trousers of the Marine dress uniform commemorates the blood shed in the desperate fight at Chapultepec on the previous day.

134.144

Figure 11-4.—The first lines of the "Marines' Hymn," "From the Halls of Montezuma to the Shores of Tripoli," commemorate, in reverse chronological order, the accomplishments of the Marine Corps in the Mexican War . . .

Colonial Marines at the time the organization was assigned as the 43d Regiment of Foot in the British Army.

The U.S. Marine Corps dates from the resolution of the Continental Congress on 10 November 1775, authorizing two battalions of Marines. Never larger than one battalion in actual strength, the Continental Marines served gallantly throughout the Revolution. Recruiting was begun at Tun Tavern in Philadelphia, and Major Samuel Nicholas, regarded now as the first commandant, led the first overseas expedition in

1776—a raid on New Providence, Bahama Islands.

The Marines fought with Washington in the Trenton-Princeton campaign (1776-77). They served with Clark in the West (1778-79); and French Marines in the American service were part of John Paul Jones' descent on Whitehaven, England, and spectacular defeat of the *Serapis* (1779). American Marines participated in the ill-fated Penobscot expedition (1779) and in the defense of Charleston (1780). Marines fought in most of the important sea battles of the war,

fought in all the major sea actions, as well as innumerable encounters with privateers and pirates in the West Indies. They also carried out landings on Curacao (1800) and Puerto Plata, Santo Domingo (1800), and guarded French prisoners of war in the United States.

In the War with Tripoli, commencing in 1801, Marines took part in naval engagements in the Mediterranean and in the blockade of Tripoli City. Marines, led by First Lieutenant Presley N. O'Bannon, after a 600-mile march from Egypt, participated in the only land campaign of the war—the capture of Derne (1805).

In the War of 1812, Marines fought in every major naval engagement, including the Battle of Lake Erie under Oliver Hazard Perry. On land they are best remembered for the defense of Sackett's Harbor, N.Y., and Norfolk, Va. (1813), and for the Battles of Bladensburg (1814) and New Orleans (1815).

General lawlessness in the Caribbean and the Gulf of Mexico growing out of the collapse of the Spanish Empire led to many naval encounters with pirates and revolutionaries in the second and third decades of the 19th century. Marine landings against pirate strongholds were made at Grand Barataria (1814), Amelia Island (1817), Port-au-Prince, Haiti (1817, 1821), and Fajardo, Puerto Rico (1824). On the other side of the world, plundering of American merchantmen in the East Indies led to Marine landings in Sumatra in 1832, 1838, and 1839. Under the provisions of the act of 30 June 1834, which established the land warfare responsibilities of the Marine Corps, Marines commenced in 1836 a 6-year land campaign against the Creek and Seminole Indians in Georgia and Florida in conjunction with the Army. Colonel Archibald Henderson, the "grand old man of the Marine Corps" who served as commandant for 39 years under nine presidents, led the expedition against the Indians. Marines were also active with the "Mosquito Fleet" which the Navy sent into the Everglades during the war.

Marines with the Wilkes Exploring Expedition (1838-42) made several landings in Fiji, Samoan, and Gilbert island groups, to pacify hostile inhabitants or redress injuries to

American merchant seamen. Attacks on merchant vessels by coastal tribes took Marines ashore in West Africa several times in 1843. Marines got their first acquaintance with China in 1844 when they landed at Canton during an anti-American riot.

Marines served in both theaters of operations during the Mexican War. Marines were the first U.S. troops in Mexico with their landing at Burrita, 15 miles from the mouth of the Rio Grande. Marines, in conjunction with Commodore Matthew C. Perry's Gulf Squadron and Major General Winfield Scott's army, took part in the landing at and capture of Vera Cruz. A Marine battalion served as part of General Quitman's division in the capture of Mexico City. Marine Captain George C. Terrett's company was joined by Second Lieutenant Ulysses S. Grant and 26 soldiers in an assault on the city's San Cosme gate. Thus, Marines were among the first forces to enter the city. When the battalion returned to Washington, D.C., the city presented the Commandant a standard emblazoned with "From Tripoli to the Halls of the Montezumas".

In the West, Marines made the landings which initially secured the coast of California (July-October 1846), fought ashore in the reconquest of the interior (December 1846-January 1847), and occupied several towns in Baja, California and Western Mexico (March 1847-April 1848).

A number of landings in support of American commerce were carried out by Marines in the 1850s, the most important being the reduction of the Barrier Forts at Canton, China (November 1856). A formidable Marine guard accompanied Perry's mission to Japan in 1853-54. In the United States, Marines were involved in the capture of John Brown at Harpers Ferry, Va. (October 1859). The senior Federal officer present who exercised overall command was Brevet Colonel Robert E. Lee, 2d U.S. Cavalry.

Although their part in the Civil War was comparatively minor, Marines were among the first U.S. troops to feel the impact of the coming conflict when the barracks at Pensacola, Florida, was compelled to surrender to local

forces in January 1861, and the barracks at Norfolk was evacuated in April. A Marine battalion fought in the first battle of Bull Run (July 1861). Marines were aboard all major vessels of the blockading fleets, and a Marine battalion serving in Admiral DuPont's squadron (October 1861-March 1862) carried out a number of armed reconnaissances along the south Atlantic coast. Other operations of the war in which Marines took part were the landing at Hatteras Inlet, N.C. (August 1861); the attacks by the *Virginia* on the *Cumberland* and *Congress* (March 1862); the Battle of Drewry's Bluff, Va. (May 1862); the siege of Charleston, S.C. (1863-1864); suppression of the New York Draft Riots (July 1863); the defense of Gunpowder Bridge, Md. (July 1864); the Battle of Mobile Bay (August 1864); the expedition up Broad River, S.C. (November-December 1864); and the capture of Ft. Fisher, N.C. (January 1865). For heroism at Drewry's Bluff, Corporal John F. Mackie became the first Marine recipient of the Medal of Honor.

In the 33 years of peace following the Civil War, the Marines saw action on foreign soil 32 times, most memorably in the assault on the Salee River forts in Korea (June 1871) and on the Isthmus of Panama (April-May 1885).

During the period between 1876 and 1891, when Colonel Charles G. McCawley was commandant, the organization of the Marine Corps was considerably improved. One innovation with which he is credited was obtaining an annual quota of graduates from the Naval Academy for commissioning as Marine officers.

At Guantanamo Bay, Cuba (June 1898) Marines seized an advance base for naval operations. During the battle for Cuzco Well, 6 miles southeast of Guantanamo, naval gunfire meant to support the battalion fell directly on Marine positions instead. Sergeant John H. Quick stood calmly exposed between the fire of the enemy and that of the ship and sent a signal to cease fire with an improvised flag. The shelling ceased; Quick emerged unscathed and was later awarded the Medal of Honor for his courageous act.

With the fleet, Marines manned secondary batteries in the Battles of Manila Bay and Santiago (May-July 1898) and provided the

landing parties which took possession of Guam (June 1898) and various ports in Puerto Rico (July-August 1898). Marines on occupation duty in the Philippines after the Spanish surrender were drawn immediately into the suppression of the insurrection attendant upon the American occupation (June 1898-July 1902). During the Boxer Rebellion, Marines defended the American Legation in Peking and formed part of the allied relief column that captured the Chinese capital (June-August 1900). Establishment of formal Marine guards for American diplomatic posts also dates from this era.

During the relief of Peking at the siege of Tientsin, the Marines alternately helped and were helped by the Royal Welsh Fusiliers during various critical stages of the fighting. This two-way support gave rise to mutual admiration between fighting men, which to this day is commemorated by an exchange of cables on 1 March, Saint David's Day. The message reads simply, "And Saint David," the ancient Welsh password.

The years 1903-04 saw Marines in Santo Domingo and Panama, and a special detail served as guards for a U.S. diplomatic mission traveling to Abyssinia by camel caravan. From 1906 to 1909 the Marines participated in the Army of Occupation in the Cuban Pacification; in 1914 an expedition was sent to Vera Cruz, Mexico; from 1909 through the 1920s (except for 1911) Marine units remained in Nicaragua; in 1912 and again in 1916-24 Marines occupied the Dominican Republic; and in 1915 they occupied Haiti.

During this period forward-looking officers of the Corps, such as John A. Lejeune and John H. Russell (both subsequently to become commandants) had already visualized the modern Marine Corps as a fleet expeditionary force designed for the seizure and defense of advanced bases, as the means whereby a balanced fleet projects its power into the shoreline. In line with this thinking, an Advance Base Force (ancestor of the Fleet Marine Force) was organized within the Corps for just such missions; and prior to our entry into the European war, pioneer steps toward modern amphibious techniques were taken.

New weapons and equipment came into the hands of Marines in the decade before World War I, and new tactics based on the use of these weapons were developed. Gasoline-powered trucks facilitated transportation and supply problems, and radio provided rapid long-distance communications. Improved artillery, more reliable machineguns, and automatic rifles gave Marine units greatly increased firepower. The airplane gave promise of unlimited possibilities, and on 22 May 1912, First Lieutenant Alfred A. Cunningham was assigned to naval aviation duty as the first Marine pilot.

WORLD WAR I

During World War I, the 4th Marine Brigade served as one of the infantry brigades of the Army's 2d Division. In its first offensive action of the war, the brigade was thrown in to stop the determined German attack pointed toward Paris. Fighting furiously, the Marines attacked

the well-entrenched Germans at Belleau Wood and finally cleared them out by 26 June 1918. In 20 days of heroic fighting, the Marine brigade had met and defeated part of two of Germany's most distinguished divisions.

For heroic conduct by the brigade in that battle, the French Army commander changed the name of the wood to *Bois de la Brigade de Marine*, or Marine Brigade Wood, and awarded the *Croix de Guerre*, or Cross of Gallantry, to this spirited American unit.

After further action at Soissons, St. Mihiel, and Blanc Mont Ridge, November of 1918 found the brigade, along with other American units, in the final phase of the great Meuse-Argonne offensive (figure 11-5). The 2d Infantry Division, with the Marines leading it, was assigned the mission of driving a wedge-shaped attack through the backbone of hostile resistance. The attack was completely successful, and the Marines were still advancing when news of the armistice was announced.



Figure 11-5.—Marines set up a light gun against the Germans during the Meuse-Argonne offensive of World War I.

29.322

Prior to leaving France, the 4th Marine Brigade had three times been awarded the *Croix de Guerre*, the only American unit so honored.

The 5th Marine Brigade served mainly on military police and line of communications duty in France.

Marine aviation units under Cunningham, the Corps' first aviator, formed the Day Wing of the Northern Bombing Group in northern France and Belgium. Fifty-seven bombing missions were flown by Marine pilots, and they accounted for a dozen German planes. An antisubmarine patrol station was operated in the Azores from 21 January 1918 until the armistice of 11 November 1918.

BETWEEN WORLD WARS

The period of peace between World War I and World War II was anything but peaceful for the U.S. Marines. In three Caribbean countries (Haiti, Santo Domingo, and Nicaragua) they quelled armed revolt and organized efficient native police forces that could handle insurrections after they had withdrawn.

During these years the Corps' few Marine aviators began to develop the doctrine of close air support for troops on the ground that reached perfection in the latter stages of World War II and in Korea. In 1927 Major Ross E. Rowell led the first organized dive bombing attack in history against an organized enemy (Sandino's rebels in Nicaragua). Aircraft were used for reconnaissance, observation, supply drops (including replenishment of emergency medical stores), and casualty evacuation.

In 1928 First Lieutenant Christian F. Schilt made a series of remarkable rescue flights near Quilali, Nicaragua. Several Marines had been wounded by bandits and had no way to reach medical aid. Lieutenant Schilt used the main street of the village for an airstrip, once the buildings on each side had been razed to make room for his wings. For 3 days he flew out wounded men, bringing ammunition and supplies on each return trip. For his demonstrated "almost superhuman skill," he was awarded the Medal of Honor.

Constantly recurring duty in China took Marines there on several occasions after 1854 when internal strife necessitated their presence to protect American interests. In 1911 they landed in China during the overthrow of the Manchu Dynasty. Troublesome conditions in 1924 again required the strong protective arm of the Marines, and in 1927 a force of about 5000 Marines was stationed at various points, principally Shanghai and Tientsin. Most of the force returned to the United States in 1929, leaving only the 4th Regiment in Shanghai.

In 1941 Marines were stationed throughout the world. About 2000 were serving in China and the Philippines, under the Commander in Chief of the Asiatic Fleet. Several thousand Marines were on duty at naval stations in the Hawaiian Islands, Guam, Wake, Midway, American Samoa, the Panama Canal Zone, and Cuba. Marines were in Iceland, on various islands in the Atlantic and Caribbean area, and in England and northern Ireland.

Perhaps the most important contribution of the Marine Corps to the Nation during this period—or during the entire existence of the Corps, for that matter—was its evolution of the techniques and doctrine for successful amphibious warfare, which were brought into being at the Marine Corps Schools, Quantico, Virginia, primarily between 1922 and 1935. As a necessary concomitant to this doctrinal development, the Fleet Marine Force, basic instrument for execution of these doctrines, was organized in 1933. Both the Fleet Marine Force organization and the doctrines upon which it was shaped served virtually unchanged in concept throughout all of World War II. And in 1941, when the Army began to show interest in landing operations (which had hitherto been exclusively within the Marine Corps province), Marines provided a working doctrine and trained seven Army divisions, including the first three divisions to receive amphibious training.

WORLD WAR II

Any story of the war against Japan in the Pacific, the greatest naval war of all time, brings into sharp focus the activities of U.S. Marines.

They were part and parcel of that war from the day of the attack against Pearl Harbor to the occupation of conquered Japan. Marines served at Corregidor and Bataan. The U.S. outpost island of Guam fell to the Japanese only after a determined but futile stand by the handful of Marines stationed there. The stubborn defense of Wake waged by the naval command with the fighting Marine detachment evoked the admiration of the Nation in its darkest hour and won grudging respect from the enemy.

Throughout the early part of 1942, while the enemy roamed the Pacific at will, Marine defense battalions were sent to critical outlying islands in the Pacific to defend and hold them until a counteroffensive could be launched. The first concerted U.S. offensive of World War II began in the Pacific with the landing of Marines at Guadalcanal in August 1942. For over 4 months the battle raged as fresh Japanese troops were landed, only to be fought down by General Vandegrift's Marines. The long channel between Guadalcanal and Tulagi became an

iron-bottomed sea, cluttered with U.S. and Japanese ships sunk in furious naval engagements. From Henderson Field, the prize airstrip on Guadalcanal, Navy, Marine, and Army planes rose to shoot down Japan's best pilots.

With Guadalcanal secured, Marines of newly created divisions fought the Japanese from two directions. Two divisions drove through the upper Solomons to New Britain and Bougainville, making the reduction of Rabaul, one of Japan's strongest island fortresses, a foregone conclusion. Meantime, another division landed at Tarawa, first step in the central Pacific.

More than 3300 casualties within 76 hours made the battle of Tarawa extremely costly; yet it was unique. For the first time in history, a seaborne assault was launched against a heavily defended coral atoll, and assault amphibians (figure 11-6) were used in an assault landing. The operation demonstrated the soundness of existing Marine Corps doctrines, but brought to



Figure 11-6.—Armored assault amphibians of a Marine battalion form into line for the drive to the beach.



134.146

Figure 11-7.—Beaches on Iwo Jima (Iwo Island) are covered with volcanic ash and cinders that make running almost impossible. The Marine amphibious landing in February 1945 began what General Holland Smith said was "... the most savage and costly battle in the history of the Marine Corps" against a well-fortified, almost impregnable defense.

light other areas requiring improvement for future operations.

Then came the Marshalls, another step in the central Pacific, and the 4th Marine Division, part of the Marine V Amphibious Corps, gained its first combat experience in an operation where tactical surprise and crushing air and naval bombardment put the Japanese at an immediate disadvantage. From the Marshalls the offensive moved on westward, the next amphibious assault being against the Marianas. Here, in mid-1944, a task force of field army size, under an overall Marine command comprising two Marine amphibious corps, three Marine divisions, a Marine brigade, and two Army divisions, wrested the strategic islands of Saipan, Tinian, and Guam from a stubborn enemy and breached the Japanese inner island defense chain.

After the Marianas came the Palaus, where the 1st Marine Division, in its third major operation, landed on the bitterly defended island of Peleliu and seized it, providing General MacArthur with protection on his eastern flank as he prepared to move into the Philippines.

In February 1945 the V Amphibious Corps landed on the island of Iwo Jima to fight one of the bitterest actions of the war (figure 11-7). The Japanese, having profited from earlier experiences against Marines, organized the island's excellent terrain to a degree never encountered before and staged a bloody, last-ditch fight. Fewer than 1100 prisoners were taken. The hard-won victory at Iwo paved the way for landing on Okinawa and helped to secure the airlines followed by B-29s to the main Japanese islands.

Probably the most fitting tribute to the men who fought on Iwo was expressed by Admiral Chester W. Nimitz when he said, "Among the Americans who served on Iwo Island, uncommon valor was a common virtue."

After 82 days of bitter fighting, the island of Okinawa, last obstacle before the main Japanese islands, fell to American forces. Here as before, the Marine divisions demonstrated their versatility, taking part in the amphibious assault and in the extensive land fighting that followed. Here again the Marines fought under the guns of the fleet, operating over 6000 miles from home waters and threatened continuously by the Japanese kamikaze planes.

The war saw the Fleet Marine Force expand from two divisions operating under an amphibious corps, to six divisions and four aircraft wings, comprising two corps which were earmarked to spearhead the final landings on Japan proper. On 30 August 1945, 3 days before the formal surrender document was signed aboard *USS Missouri*, 10,000 Marines and naval forces landed and took possession of the Yokosuka naval base and neighboring islands. While they landed as assault troops, they met no opposition, and they became a part of the Allied occupation forces.

KOREA

As a result of cuts in appropriations after World War II, Marine Corps strength by June 1950 had dropped to just a shade under 75,000. Of this number, approximately 28,000 were serving in the Fleet Marine Forces. Others served at posts and stations, naval bases, on ships, in supply and administrative billets, and in a variety of special assignments.

Although the Corps had one division and one aircraft wing on each coast, all units therein were considerably undermanned. In fact, regiments were hardly more than understrength battalions; service and support units also were reduced or eliminated. The Marine Corps in 1950, then, was little more than a skeleton of its former self; but when North Korean Communists launched their attack on the Republic of Korea, the Corps again lived up to

its tradition of a force in readiness. The 1st Provisional Marine Brigade departed the United States for the Far East on 14 July 1950, only 7 days after its activation. A balanced air-ground team, the brigade distinguished itself in the role of mobile reserve, or "fire brigade," during the fierce August battles in defense of the perimeter around the port of Pusan.

Even while the defensive battle was in progress, United Nations forces prepared to take the offensive. The Marines made an amphibious assault landing deep in the enemy rear to seize the port of Inchon and the Korean capital, Seoul. For the Inchon-Seoul operation, the 1st Marine Division and 1st Marine Aircraft Wing were teamed with an Army division in X Corps. This operation on 15 September 1950 severed the enemy line of communications and, coupled with Army pressure from the Pusan perimeter, forced him to withdraw rapidly northward.

The North Korean armies retreated across the 38th parallel. To complete their destruction, a double envelopment was planned, including an amphibious landing by X Corps at Wonsan in northeast Korea, as one arm of the pincer. But so rapidly did the enemy resistance collapse that the Wonsan landing was unopposed. U.N. forces advanced toward the Yalu River, mopping up the remnants of defeated enemy forces and occupying the country.

By the end of November, the 1st Marine Division had reached the Chosin Reservoir far into North Korea. But the Chinese Communists, having stealthily crossed the Yalu River, struck advancing U.N. forces in great strength. The 1st Marine Division was attacked by elements of eight Chinese divisions and was cut off from its base on the coast. From Yudam-ni, the point of farthest advance, the Marines began to fight their way out of encirclement. The weather was almost as bitter an enemy as the Communists. Temperatures ranged around -20° to -25°, the ground was covered with ice and snow, and knife-edged winds slashed across the barren landscape. Using their firepower to the best advantage, and with excellent air support from Marine and Navy planes, the division fought its way back to the coast, bringing its equipment, and its wounded and dead (figure 11-8). Marine casualties were heavy, but Chinese losses were estimated to be eight times those of the Marines.

The beginning of 1951 found the 1st Marine Division and 1st Marine Aircraft Wing redeployed to South Korea and integrated in the 8th Army and 5th Air Force. Following a period of reorganization, the 8th Army resumed the offensive in Operations Killer and Ripper, and advanced steadily to the vicinity of the 38th parallel. In April and May, the Chinese struck back in two major efforts. They made some penetration, but the 8th Army held firm and late in May went back on the offensive. With the opening of truce talks, major offensive action by both sides ceased and the situation remained substantially static thereafter.

KOREA TO VIETNAM

After Korea, the Marine Corps maintained a division-wing team in readiness in the Far East. The division, starting in August 1960, also kept a battalion landing team afloat with the 7th Fleet, poised for action at a moment's notice. A

Marine brigade, composed of a regiment and an aircraft group in Hawaii, provided a backup to the first line of defense.

The principal role of the Corps during the period of cold war has been to provide a force in readiness for immediate use in crisis or disaster relief and as part of the Strategic Reserve.

In the Mediterranean area Marines have been in the forefront helping to implement national policy. As early as 1948, Marine battalions were serving afloat with the 6th Fleet. The wisdom of this policy first became evident in 1956 during the brief war which pitted Israel, France, and Britain against Egypt. On 1 and 2 November of that year, in spite of the danger from air raids, Marines landed at Alexandria, Egypt, to help evacuate some 1500 American civilians and other nationals. More vital to the safety of the free world was the landing of Marines in Lebanon during July 1958. Here the prompt deployment of American's force in readiness forestalled an attempt to overthrow the lawful



Figure 11-8.—Bitter weather as well as elements of eight Chinese Communist divisions lashed the 1st Marine Division during its breakout from the Chosin Reservoir in December 1950.

government and thwarted possible Communist penetration of that area.

Marines assigned to the 7th Fleet aided in the evacuation of refugees from North to South Vietnam in 1954. In February of the following year, they assisted in the evacuation of Chinese Nationalist troops from the Tachen Islands. The winter of 1957-1958 saw Marine helicopters being employed in Ceylon to bring food and medicine to those left destitute by devastating floods. During the Chinese Communist threat against Quemoy in the fall of 1958, a Marine aircraft group was stationed on Taiwan to bolster the air defenses of that vital island. A Marine task force served ashore in Thailand from May through August 1962 during the continuing Laotian crisis.

In the Cuban missile crisis (October-November 1962) a sizable Marine force was deployed to the Caribbean from east coast bases, while a second force was lifted by air and sea from the west coast. Marine photo pilots attached to a Navy photographic reconnaissance squadron flew low-level missions over Cuba that yielded valuable information on the missile buildup.

Marine helicopters began operating in the Republic of Vietnam in April 1962, providing support and mobility to the Republic of Vietnam army in its struggle with the Communist Viet Cong. This helicopter unit and its supporting personnel compiled an enviable record, both in the Mekong Delta and the mountainous jungles of the north. At the same time, Marine officers and NCOs served as advisers to the Vietnamese Marine Corps, which quickly became the elite of the Vietnamese armed forces. When the United States stepped up its aid program to that country (forming the Military Assistance Command, Vietnam, as part of that assistance) senior Marine officers served in key billets on the staff of the MACV. In February 1965, a Marine antiaircraft unit was landed in the Republic of Vietnam to provide protection for the vital airbase at Da Nang.

Even while significant numbers of Marines were being deployed to the Republic of Vietnam, events taking place nearer home—the Dominican Republic in the Caribbean—also

necessitated Marine participation. In April 1965, as the result of a reported coup attempt against the president of the triumvirate then running the Dominican Republic, CINCLANTFLT ordered CTG 44.9 to move his amphibious squadron of ships to a position off the coast of Hispaniola, and to be prepared to evacuate some 3600 American citizens and friendly foreign nationals.

By 26 April, rebels appeared to be in control of the streets of the capital, Santo Domingo, and the loyal Dominican troops had been pushed out of the National Palace. The U.S. Embassy was receiving sporadic sniper fire. On 28 April Dominican police said they no longer could guarantee the safety of evacuees; as a result, more than 1500 Marines of 1800 embarked were sent ashore to protect the lives and property of American citizens. At the height of its involvement, the Marine Corps had three battalions ashore and one afloat in reserve. Including Marine aviation and other support, total reinforced troop strength was about 8000; casualties were 9 killed and 30 wounded at the hands of Dominican rebels. Army casualties were about the same, elements of the 82d Airborne Division having arrived on 30 April.

Marine forces remained in the Republic until 6 June 1965 when the Inter-American Peace Force, consisting of troops from Paraguay, Honduras, Nicaragua, Costa Rica, and Brazil, undertook the task of restoring peace and constitutional government to the Republic.

On 8 March 1965, the 9th Marine Expeditionary Brigade, under Brigadier General Frederick J. Karch, landed at Da Nang, South Vietnam, beginning the large and rapid Marine troop buildup of the 3d Marine Division, the formation of III Marine Amphibious Force, the arrival of the 1st Marine Aircraft Wing, and the construction of an expeditionary airfield south of Da Nang at Chu Lai.

During the middle of August 1965, the 7th Marines fought the first U.S. regimental-size battle since Korea. Operation Starlight, conducted on the Van Tuong peninsula south of Chu Lai, accounted for nearly 1000 Viet Cong casualties.

The Marines quickly recognized that a key to winning the "hearts and minds" of the

Vietnamese people and incidently to cutting down on Communist activity was a pacification concept which placed a squad of U.S. Marines with each local village's Popular Force platoon. The concept, reminiscent of Marine experiences in Haiti, Santo Domingo, and Nicaragua, was first tried in late 1965 and continued until the Marine withdrawal. In a conflict unfortunately characterized by protest and criticism at home, the Marine civic action efforts were nearly universally praised.

In March 1966, the 1st Marine Division completed its move to Vietnam; and during July the 3d Division moved north to Quang Tri province just south of the DMZ (demilitarized zone) for its first fight with North Vietnamese (NVA) regulars, Operation Hastings. The move established Marine division operating areas for the remainder of the war; the 3d Division operated in the north along the DMZ and around Khe Sanh, Dong Ha, Camp Carroll, and Con Thien, while the 1st Division was based to the south around Da Nang, An Hoa, Chu Lai, and the Hai Van Pass.

The fighting in 1967 centered around the Khe Sanh hills 881 north, 881 south, and 861 south, Con Thien, and the Que Son Valley to the south.

During Tet (the celebration of the Vietnamese lunar New Year) in 1968, the NVA launched major coordinated attacks against both the Khe Sanh combat base and the old imperial city of Hue. In the fierce fighting which followed, Khe Sanh held and Hue was recaptured. The remainder of 1968 was highlighted by mobile warfare in the northern half of I Corps and the breaking of a concerted attack on Da Nang in the south. Operation Meade River, a 1st Division cordon and search operation south of Da Nang, netted over 1200 enemy prisoners.

The next year began auspiciously with the 9th Marines' Operation Dewey Canyon, perhaps the most successful regimental-size operation conducted by the 3d Marine Division. A Communist attack on Da Nang during Tet in February fizzled in 3 days. The year also marked the beginning of Marine withdrawals. By October, the 3d Marine Division and elements of

the 1st Marine Aircraft Wing had left Vietnam. Withdrawals continued during the next year and into 1971, and on 26 June of that year the last Marine combat units departed Vietnam. Marine advisors stayed with their Vietnamese counterparts through the NVA 1972 Easter offensive until the cease-fire in January 1973. The war had cost the Marine Corps over 100,000 casualties.

Marines returned to Southeast Asia in 1975 for the evacuation of Saigon, took part in the evacuation of Pnom Penh, and recaptured the container ship *SS Mayaguez* from Cambodian forces.

On 10 November 1975, Marines around the world celebrated the 200th birthday of their Corps.

MARINE CORPS ORGANIZATION AND EQUIPMENT

The Marine Corps stands ready to carry out a wide variety of missions assigned by higher authority. First among them is preparation for and execution of assault amphibious operations. Other missions include service afloat, security of naval installations and diplomatic missions, airborne operations as required, training of foreign military forces, and support of other services as necessary in carrying out their missions. The legal authority for Marine Corps missions is the National Security Act of 1947, codified in Title 10, United States Code.

Figure 11-1, which shows the general organization of the Marine Corps, does not delineate the specific command structure.

FLEET MARINE FORCE

The Fleet Marine Force (FMF), which has been in existence since 1933, comprises the main fighting strength of Marines assigned to the Operating Forces of the Navy. The FMF includes all air and ground tactical units of the Marine Corps. It is organized into two type commands, designated Fleet Marine Force Atlantic and Fleet Marine Force Pacific.

The type commands are organized into air-ground task forces combining all air and

ground arms in powerful, fully mobile striking forces, each under a single commander. These forces may be built around units as small as battalions and air squadrons, or may be large enough to include a division and air wing team.

The primary mission of the FMF is to conduct oversea amphibious operations for the seizure and defense of advanced bases as part of a naval campaign. The nature of this mission therefore requires that it be kept in a very high state of readiness for employment, and that all its units—which include infantry, artillery, armor, communications, engineer, and logistic troops, as well as aviation organizations to provide air support—be completely mobile. One Marine base on each coast is set aside as the point at which the bulk of FMF ground units for the fleet in question is concentrated just as one Marine Corps air station, similarly located, affords a home station on each coast for FMF air units.

Because of its completely self-supporting character—even to possession of its own tailor-made, tactical air force—the FMF presents a working example of unification of all arms and branches, and can perform virtually any military mission ashore, including extensive land warfare such as in Korea and Vietnam.

Marine Division

The Marine division is the basic Marine Corps ground organization of combined arms and services capable of sustained combat. A division consists of three infantry regiments; an artillery regiment; a division support group with shore party, service, motor transport, and engineer capabilities; a headquarters battalion; and a reconnaissance battalion. Each infantry regiment is composed of three infantry battalions. A battalion, the basic tactical unit of the division, contains four rifle companies and a headquarters/service company. Companies are further divided into weapons platoons/squads/teams.

Marine Air Wing

The Marine air wing (MAW) is a task organization consisting of two or more aircraft

groups plus headquarters and service units. Each group is made up of two or more tactical squadrons (the basic aviation unit) in addition to a headquarters and service squadron. In practice, a wing normally includes three groups, each of which contains four squadrons. A variety of fighter, attack, reconnaissance, transport, rotary wing, and light antiair missiles may be found in each wing. Depending on the model of aircraft assigned, a squadron will have from 12 to 20 aircraft.

Force Troops/Force Service Support Group (FSSG)

The force troops/FSSG maintained by each FMF comprise a reservoir of additional manpower available for support of (but not organic to) a division or air wing that is to conduct extended operations. Force troops/FSSG include service and service support organizations for prolonged logistic and combat support to include motor transport, engineer, maintenance, medical, and dental units as well as a field artillery group, a tank battalion, amphibian battalion, and others.

MARINE CORPS RESERVE

Ready to increase the combat strength of the Marine Corps by one-third in a matter of weeks is the 4th Marine Division/Wing team of the Organized Marine Corps Reserve. This force is organized, equipped, and trained in the same manner as the regular Fleet Marine Forces. Also in the Organized Reserve are companies to provide personnel augmentation and force troop units.

The Organized Reserve totals nearly 30,000 personnel in both ground and aviation units. Also in the Ready Reserve, not in units, are over 57,000 additional officers and enlisted personnel who also are trained and prepared for quick response.

The Commandant has stated that he plans to call the Marine Corps Reserve only when regular forces are committed. Necessarily then, the Reserve must be ready to respond in a matter of weeks. The training program reflects this Reserve responsibility with combat-realistic

air-ground training 1 weekend a month and 2 weeks each summer. During the latter, reserve and regular units train together and frequently join forces in exercises which duplicate, insofar as possible, their indistinguishable roles in combat.

WOMEN MARINES

During World War I, 305 women reservists, or "Marinettes," served in clerical jobs in order to free male Marines to fight in France. In February 1943, the Marine Corps again called for women to release men for combat. By June 1944, the authorized quota of 18,000 enlisted had been met and approximately 800 officers trained and assigned.

Unlike World War I women marines, the World War II women reservists performed over 200 different military assignments at every major post and station in the United States and Hawaii. By July 1946, all women reservists became eligible for discharge. They had performed well in answering the Corps' call to "Free a man to fight."

By Act of Congress of 12 June 1948, authority was given to enlist women in the regular Marine Corps. Soon thereafter a woman's officer training detachment was set up at Quantico, and the 3rd Recruit Training Battalion was activated at Parris Island for the training of enlisted women.

Today women marines serve in almost all the noncombat fields, but they are found most often in personnel administration, informational services, automatic data processing, Marine Corps exchange, aviation, supply, and disbursing. An integral part of the regular Marine Corps team, they provide a nucleus which could be expanded rapidly in the event of mobilization.

MARINE CORPS EQUIPMENT

Heavy equipment of the Corps includes tanks, amphibians, artillery pieces, missiles, and aircraft.

Tanks

There is a single model tank in use in the Marine Corps, the M-60 medium tank. Its armament consists of a 105-mm (1 inch equals approximately 25.50 millimeters) gun, a 7.62-mm machinegun, and a .50-caliber machinegun. The M-60 tank weighs 53 tons and can travel 30 mph, climb 60% grades, scale 3-foot-high obstacles, ford 8-foot-deep streams (this capability is provided by a special kit), and cross 8-1/2 foot ditches.

Amphibian Vehicles

The current amphibian vehicle used by the Marine Corps is the LVTP-7 (landing vehicle, tracked, personnel). It can carry 25 combat equipped Marines or 5 tons of supplies in the amphibious assault. Waterborne speed is 8.4 knots. Ashore it can travel 40 mph, climb 60% grades, surmount 3-foot-high obstacles, and traverse 8-foot-wide ditches.

Other versions of the assault amphibian include the LVTC-7 (command), which has the necessary electronic equipment installed to provide command and control during ship-to-shore and subsequent operations, and the LVTR-7 (recovery), which provides mobile repair and retrieval facilities for disabled vehicles.

Artillery

Artillery pieces of the Marine Corps consist of towed and self-propelled howitzers, and self-propelled guns.

The standard artillery piece is the 105-mm towed howitzer. Mounted on a wheeled carriage, it fires a 33-pound high-explosive (HE) shell to an effective range of 11,400 meters. It also can fire white phosphorus, illumination, smoke, and "beehive" rounds (a beehive is composed of tiny darts used for repelling human-wave attacks).

Mounted on a tanklike body propelled by tracks, the 155-mm self-propelled howitzer fires a 97-pound HE shell to an effective range of 14,000 meters.

The 155-mm towed howitzer is the heaviest helo-transportable artillery piece in the Corps. Its ability to go where the self-propelled version

cannot was the reason for its retrieval from mothballs during the Vietnam Conflict and for its continued survival today.

The 8-inch self-propelled howitzer, probably the Corps' most accurate artillery piece, fires a 200-pound HE round to an effective range of about 16,000 meters. Classed as heavy artillery, this weapon is not included in artillery regimental organization. It is deployed by force troops as required.

Currently the longest ranging artillery piece used by the Marine Corps is the 175-mm gun. Employing the same carriage as the 8-inch howitzer, the 175-mm gun fires a 147-pound HE shell to an effective range of nearly 33,000 meters.

Missiles

In addition to conventional weapons, Marines utilize surface-to-air missiles to defend

ground forces from low-level air attack (figure 11-9).

Aircraft

In addition to helicopters, Marine aircraft units include attack (VMA), all-weather attack (VMA(AW)), fighter (VMF), fighter/attack (VMFA), photo reconnaissance (VMFP), electronic countermeasures (VMAQ), transport (VMR), observation (VMO), and aerial refueler transport (VMGR) squadrons. A number of aircraft flown by the Corps are shown in figure 11-10.

OFFICER PROCUREMENT

The Marine Corps has officer procurement programs similar to those of the Navy. They are based on provisions of Federal statutes as

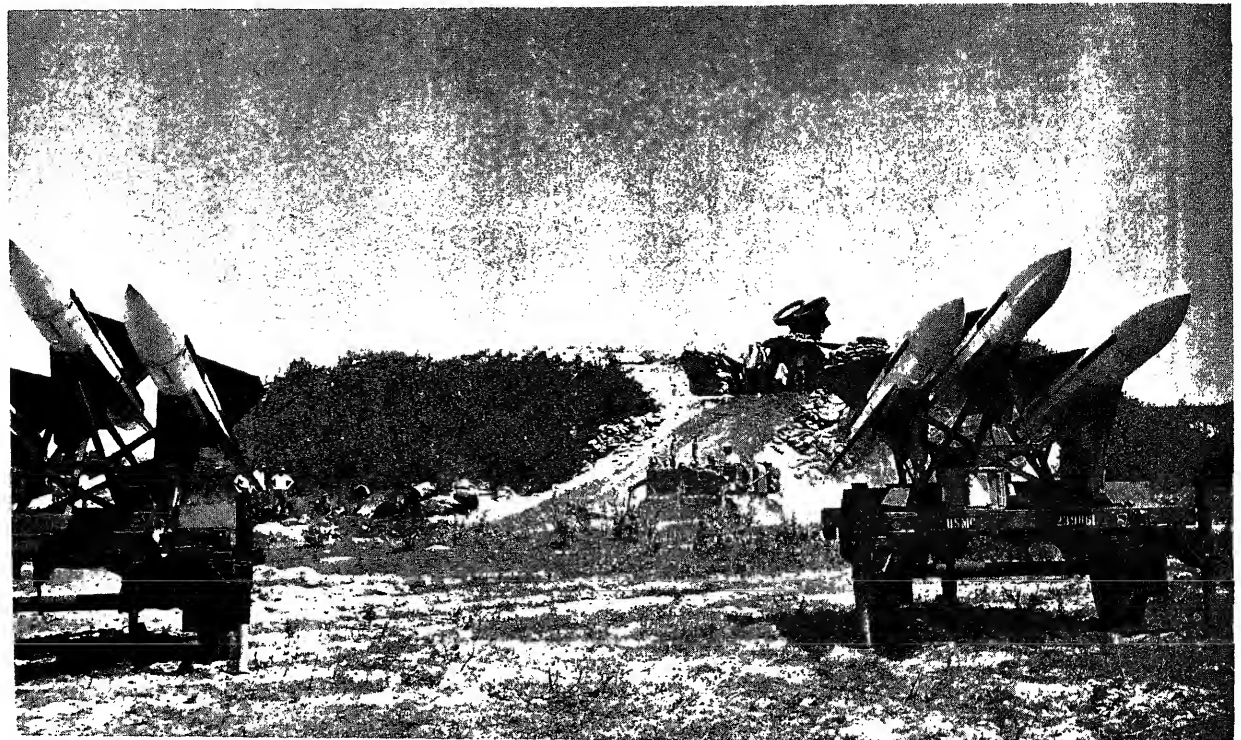


Figure 11-9.—In addition to conventional weapons, Marines use surface-to-air missiles for ground defense.



A6A INTRUDER FOR ALL-WEATHER ATTACK
AND ELECTRONIC RECONNAISSANCE



A4 SKYHAWK LIGHT ATTACK PLANE WITH
LOADED MULTIPLE BOMB RACKS



CH-46 MEDIUM TRANSPORT TURBINE-POWERED HELICOPTER



F4 PHANTOM II IS CAPABLE OF SPEEDS ABOVE 1600 MPH,
CAN CLIMB TO 50,000 FEET IN LESS THAN 2 MINUTES,
AND CAN CARRY TWENTY FOUR 500-POUND BOMBS

Figure 11-10.—To provide a varied capability, each of the three Marine aircraft wings contains fighter, attack, transport, reconnaissance, observation, and helicopter aircraft. 134.66

implemented by instructions issued by the Secretary of the Navy and the Commandant of the Marine Corps. Candidates for appointment to commissioned grade in the Marine Corps and Marine Corps Reserve must be citizens of the United States, and they must be mentally, morally, physically, and professionally qualified. They must be at least 20 years of age and, depending on the program, not over 30 years of age (exclusive of limited-duty officers and warrant officers). Appointments are made in such numbers, within the limitation imposed by law, as may be prescribed by the Commandant of the Marine Corps to meet the needs of the Corps.

NAVAL ACADEMY

The Secretary of the Navy allots to the regular Marine Corps each year a quota (16-2/3% at present) from the current graduating class of the Naval Academy. This quota is filled by the appointment, upon graduation, of members of the class whose applications for commissions in the Marine Corps are submitted to and approved by the Superintendent of the Naval Academy. Preference for appointment is given to applicants who were formerly enlisted in the Marine Corps or Marine Corps Reserve, and to those who are sons or daughters of career Marines.

NROTC

For a general discussion of the NROTC program, see chapter 3. In brief, at the beginning of his sophomore year, a selected NROTC midshipman may elect the Marine Option and pursue specialized courses during his last 2 years. Between his third and fourth years, Marine Options attend training at Officer Candidate School, Quantico, Va. Upon successful completion of the course of study, Naval Science courses, and the training at OCS, the midshipman is appointed a second lieutenant in the Marine Corps or Marine Corps Reserve.

PLATOON LEADERS PROGRAM

The Platoon Leaders Program is a Marine Corps officer program for college students

attending regionally accredited colleges who, upon successful completion of all requirements, are commissioned as second lieutenants in the Marine Corps Reserve.

FORMER REGULAR OFFICERS

A former officer of the Marine Corps who resigned while in good standing may, if he meets certain qualifications, be reappointed. Such an officer must be of an age that will allow him to complete 30 years of service before he becomes 62 years of age.

ENLISTED COMMISSIONING PROGRAM

A noncommissioned officer of the Marine Corps whose service has been meritorious may be appointed to commissioned grade in the Marine Corps Reserve, if he is serving in the Corps, is recommended by his commanding officer, and has established his mental fitness by attaining an educational level prescribed by the Commandant of the Marine Corps.

WARRANT OFFICER

Sergeants and above with a minimum of 5 and a maximum of 12 years enlisted service may apply for appointment to the grade of warrant officer, W-1, in the Marine Corps and Marine Corps Reserve. Selections provide for advancement to warrant rank in certain administrative and technical fields for Marines who display exceptional proficiency and leadership potential.

LIMITED-DUTY OFFICERS

A permanent male warrant officer, W-2 through W-4, may be appointed to commissioned grade for limited duty in a technical field in which he is proficient, provided he has completed at least 10 and not more than 20 years of active service, and has not reached his 43d birthday.



134.63

Figure 11-11.—Basic School at Quantico, Virginia, teaches new lieutenants tactics, weapons, and leadership. Approximately half the training time is spent in the field, learning combat techniques such as crossing rope bridges.

NESEP

The Navy Enlisted Scientific Education Program is a 4-year course of study in engineering, mathematics, or the physical

sciences at selected universities. It is open to all enlisted Marines on active duty who have completed recruit training. To be selected, the Marine must pass a competitive examination and be recommended by his commanding officer.

During the course of study he draws the pay and allowances of his grade; his book expenses, tuition, and fees are paid by the Marine Corps. The Marine must successfully pass a 10-week training course at OCS, Quantico, Va., normally between his sophomore and junior years. Upon receipt of his baccalaureate degree the Marine is appointed a second lieutenant, U.S. Marine Corps.

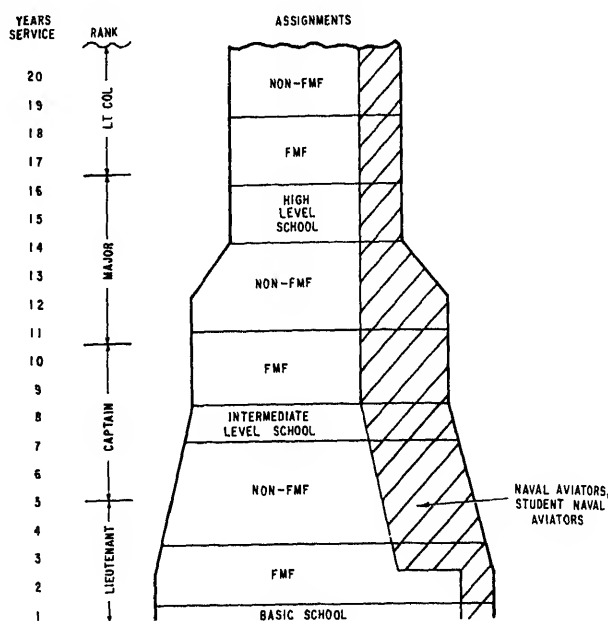
OFFICER TRAINING

The Marine Corps schools at Quantico, Va., are the principal media through which Marine officers receive their education. Established in the District of Columbia in 1891 as a School of Application for second lieutenants, it was reorganized following World War I to meet the requirements of modern warfare.

During World War II, Marine training facilities were expanded tremendously. But soon after the close of hostilities, the Marine Corps schools, which had trained 34,000 officers in wartime, were reorganized to provide formal professional education similar to that offered in the prewar period.

Upon entry into the Marine Corps, all second lieutenants, are sent to Basic School (figure 11-11 and 11-12) for indoctrination and instruction in fundamental military subjects. Emphasis is placed on individual and crew-served weapons, with study of marksmanship and technique of fire; on small-unit tactics; on basic administration and naval law; and on small-unit leadership. After graduation from Basic School, the young officer is normally assigned to duty in a unit of the Fleet Marine Force, a post or station, or a detachment aboard ship, where he gains practical experience. Depending upon Marine Corps requirements, some graduates may be assigned directly to a specialist school for a course of formal instruction.

Specialist schools include the Communication Officers School and the Data Systems School, which are located in Quantico. For training in the specialist fields not represented in the Marine Corps schools system, personnel are sent to appropriate Army and Navy schools. There is also an extension division which offers correspondence courses for Marine



134.65

Figure 11-12.—General assignment pattern for Marine Corps officers.

Corps Regulars and Reserves, enabling them to pursue their military education even though they may not be able to attend resident classes.

As the officer rounds out 8 years of service, he becomes eligible for assignment to the Amphibious Warfare School conducted by the Marine Corps schools in Quantico. Here he undergoes 9 months of intensive instruction on the battalion and regimental level, directed toward the training of captains and majors for command and staff duties within a regimental combat team or an air group of a Fleet Marine Force. Particular emphasis is placed on the coordinate employment of air, naval, and ground elements in amphibious operations.

When the officer has accumulated approximately 14 years' service, he becomes eligible for assignment to the Marine Corps Command and Staff College. The purpose of this course is to train officers in staff and command duties at the division and corps level. The course extends over a period of 9 months and includes a generous leavening of practical field work.

Through this training system the Marine Corps officer is afforded a progressive,

professional military education that extends over 20 years. In addition to those schools maintained by the Marine Corps itself, the officer may attend other high-level and top-level schools such as the Armed Forces Staff College, the Naval War College, and the National War College.

USEFUL PUBLICATIONS

Soldiers of the Sea: the United States Marine Corps. Heinl, Robert D., Jr., Annapolis: United States Naval Institute

The U.S. Marines and Amphibious War. Isely, Jeter A. and Philip H. Crowl

History of Marine Corps Aviation in World War II. Sherrod, Robert

History of U.S. Marine Corps Operations in World War II and U.S. Marine Operations in Korea. (Headquarters, USMC, historical monographs)

The United States Marines, 1775-1975. Simmons, Edwin H. The Viking Press, N.Y.

CHAPTER 12

THE NAVAL RESERVE

The size, composition, and deployment requirements of the military forces at any given time depend on this Nation's posture and goals in a constantly changing world. It is economically unsound to maintain an optimum active military force capable of handling all contingencies which might arise. Federal law, therefore, establishes within each armed service a reserve component to provide trained units and individuals in sufficient number to meet immediate mobilization needs of the service until stepped-up procurement and training programs can fulfill all further mobilization requirements.

The first utilization of a reserve source of naval manpower took place in 1888 when Massachusetts organized a naval battalion as part of the state militia. By 1897, 16 states had organized naval units as part of their state militia. Officers and men from these organizations served with the Regular Navy during the Spanish American War.

State militia organizations looked to the Federal Government for certain logistic support. The Government was encouraged by this to exercise an initial hegemony which became absolute in March 1915 when Congress approved legislation establishing a Federal Naval Reserve. Although an Office of Naval Militia was set up in the Navy Department as far back as 1891, the Naval Reserve did not come into being until World War I.

At the end of World War I, there were 330,000 Naval Reserve officers and personnel on active duty. By the end of World War II, over three-fourths of the 3,220,000 persons on active duty in the Navy were members of the Naval Reserve.

By law the total Ready Reserve of the Armed Forces may not exceed 2,900,000

officers and personnel. Within this total, the Navy is authorized a Ready Reserve of 530,000. Presidential authority for involuntary recall also is limited by law, however, to a total of 1,000,000, of which approximately 252,000 may be called from the Ready Reserve of the Navy.

The primary mission of the Naval Reserve is to provide trained units and individuals available for active duty in time of war, national emergency, or when otherwise authorized to meet the requirements of the Navy which exceed the strength and capability of the active force. Its secondary mission is to assist the active force in accomplishing its peacetime mission as a byproduct or adjunct of training.

The Navy's early mobilization requirements are many: additional ships; aircraft and special units must be added to the active forces immediately; peacetime personnel strength must be increased to wartime complement; fleet support and shorebased activities must be augmented; newly procured officers and enlisted personnel must be indoctrinated and trained. In some instances, (e.g., minesweepers, riverine warfare, mobile inshore undersea warfare) virtually the entire mission capability of the Navy is maintained by the reserve forces.

Although the ships of the Nation's reserve fleet may be reactivated, the time required to do so makes this resource available only over a much greater period of time when considering early mobilization requirements.

TOTAL FORCE POLICY

The total force includes all the resources available to perform the national defense missions. It includes the active and reserve

(National Guard and Reserve) component forces, civilian and, in some contingency plans, appropriate forces of our allies.

The total force within the Navy embraces all assets including active duty members, ships and aircraft that make up the fleet, and the reserve force and hardware that will be called upon to augment the fleet and shore establishments in time of national emergency or contingency. As a result, Naval Reserve strength is directly related to the inventory of ships, aircraft, and support equipment and is fully integrated into force strength planning. Reservists are full partners in the naval establishment with a militarily meaningful role to whom the active Navy can turn quickly for added manpower and hardware. Each individual reservist has the opportunity to make a real contribution to the Navy's mission.

RESERVE MANPOWER CATEGORIES

Reservists are assigned to one of the following categories which define both their situation regarding training and their liability for call to active duty: Ready Reserve, Standby Reserve, or Retired Reserve. Some reservists are required by law to participate in training programs while others do so on a voluntary billet-availability basis.

MILITARY OBLIGATIONS FOR RESERVISTS

Those men and women who volunteer for military service in the Naval Reserve assume a 6-year military obligation. This obligation may be fulfilled on either active or inactive duty or may be divided between the two. The exact combination of active duty and inactive duty depends upon the plan under which the individual entered the Navy.

Current enlistment programs call for a specified period of active duty with the remainder of the 6-year obligation served in a reserve status. One example of these enlistment programs is the Active Mariner (3 years active duty followed by three years reserve obligation).

Except for the Ready Mariner Program which provides for a period of 4 to 10 months active duty for training (ACDUTRA) with the remaining time on inactive duty, the minimum active duty requirement for enlisted naval reservists is 3 years. Other programs permit enlistment for varying periods of required active duty, assignment to an advanced pay grade or give credit for prior service.

Enlisted personnel, USN or USNR, released from active duty prior to completion of 6 years' service normally are transferred to the Ready Reserve. Personnel who have served on active duty for at least five years, or a combination of active duty and satisfactory participation in the Ready Reserve for a total of 5 years, are authorized by law to be transferred at their request to the Standby Reserve for the remainder of their 6-year obligation. Regular Navy officers released from active duty must accept a USNR commission if they wish to participate in the reserve program.

Those individuals who have completed their obligated service may continue to maintain a voluntary affiliation and it is from this source that the Naval Reserve obtains most of its senior personnel.

THE CAREER RESERVIST

Several factors generally motivate the officer or enlisted member of the Naval Reserve to participate in the reserve program. One of these, the satisfaction of the military obligation, has been mentioned. Others are promotion, pay and retirement benefits. Some reservists continue their participation only for the purpose of maintaining their military readiness and involvement with the Navy.

It is the policy of the Chief of Naval Reserve to ensure that the best qualified individuals are assigned to drill pay billets. They are assigned to these billets on the basis of rate, rating, Navy Enlisted Classification (NEC) code number, rank and Naval Officers Billet Code requirements. This is an important policy in the development of the high state of readiness required in the Naval Reserve.

The enlisted reservist studies, in general, the same materials for advancement as the

counterpart on active duty. Like the member on active duty, the reservist must meet specific requirements for promotion which include commanding officer's recommendation and attainment of a satisfactory score on an appropriate examination. Actual advancement to the next higher rate is determined by the needs of the Navy and is not automatic. He/she prepares for the examination through participation in unit drills, by taking Navy enlisted nonresident career courses, and by acquiring knowledge and skills on Annual Active Duty for Training (ACDUTRA).

A reserve officer must be in an active status to be eligible for consideration for promotion. The Secretary of the Navy has prescribed that a minimum of 12 points must be earned each year for an officer to be eligible for retention in an active status. The 12-point rule applies only to those inactive duty officers who have not attained retirement eligibility. Current directives require that such officers who have 20 or more years of qualifying service shall maintain 50 points each year in order to remain in an active status. These points are retirement points and are earned and credited in the manner prescribed for retirement based on nonactive service. Retirement points may be earned through participation in a reserve unit, performance of ACDUTRA and/or completion of correspondence courses.

Reservists on inactive duty participate in either pay or non-pay programs. In general, the Selected Reserve comprises the pay programs. The unit to which a reservist is assigned identifies the individual as a pay or non-pay participant and determines the ACDUTRA obligations.

NAVAL RESERVE ADMINISTRATION

CHIEF OF NAVAL RESERVE

Since 1973 the surface and air communities of the Naval Reserve have been consolidated into a single command under the Chief of Naval

Reserve (CNAVRES), a vice admiral, with headquarters at New Orleans, Louisiana. The Chief of Naval Reserve is responsible for reserve readiness and mobilization training. He is the manager of all resources—manpower, money and materials—within the Naval Reserve. Concurrently, the Chief of Naval Reserve is also the Director of Naval Reserve in the Office of the Chief of Naval Operations (CNO). As such, he is the principal advisor to the CNO on reserve matters, responsible for establishing and justifying reserve funds appropriated by Congress for operations, maintenance and construction, and for the development of Naval Reserve plans, policies and programs. Thus, responsibility for the Naval Reserve is centered at the highest level within the Navy. CNAVRES also sponsors a recruiting program but its primary objective is the reenlistment of the veteran.

COMMANDER NAVAL AIR RESERVE FORCE

The Naval Air Reserve Force (NAVAIRESFOR) is an operational command composed of the aviation squadrons of the Naval Air Reserve assigned to the Chief of Naval Reserve. NAVAIRESFOR commander is a flag officer and a designated aviator. The Commander NAVAIRESFOR is normally the Chief of Naval Reserve or the Deputy Chief of Naval Reserve.

ASSISTANT CHIEF OF STAFF FOR SURFACE PROGRAMS

The Assistant Chief of Staff for Surface Programs is responsible for Naval Reserve training and readiness afloat and ashore. Working through the Naval Reserve Readiness Commands and coordinating with Chief of Naval Education and Training (CNET) and other commands concerned with the readiness of the reserve, he directs and supervises the state of readiness, training, and administration of the selected reserve and other participating reservists associated with the surface program of the Naval Reserve.

ASSISTANT CHIEF OF STAFF FOR AIR PROGRAMS

The Assistant Chief of Staff for Air Programs advises and assists the Commander Naval Air Reserve Force in all matters involving the Naval Air Reserve Program. He is responsible for maintaining assigned personnel, aircraft and associated equipment in a state of combat readiness and availability to permit immediate and effective employment in the event of full or partial mobilization. In addition to the aviation programs, he is responsible for the Naval Reserve Intelligence Program.

NAVAL RESERVE READINESS COMMANDS

Naval Reserve Readiness Commands (NAVRESREDCOM) provide optimum management of assigned Naval Reserve units and increase the training readiness of Naval Reserve units and individuals. The continental United States is divided into 16 geographical Naval Reserve Readiness Command areas. Each readiness commander is responsible for the Naval Reserve Surface Program units within a designated area and reports to CNAVRES. NAVRESREDCOM tasks and functions are assigned by the Chief of Naval Operations and the Chief of Naval Reserve. The mission of the Naval Reserve Readiness Commander is to command assigned Naval Reserve units and direct their prescribed programs to assure unit mobilization readiness.

RESERVE UNIT COMMANDERS AND COMMANDING OFFICERS

Each Naval Reserve unit is administered by a commander or commanding officer in accordance with the instructions of CNAVRES. Commanding officers of the Naval Air Reserve squadrons receive base and administrative support from the commanding officers of host Naval Air Stations, Facilities, Units and Detachments. In the Surface Program, unit commanding officers receive support/coordination assistance from the commanding

officers of the Naval Reserve Center/Facility where the unit drills.

CHIEF OF NAVAL PERSONNEL

The Chief of Naval Personnel is responsible for Naval Reserve personnel administration in the area of recruiting, personnel accounting, personnel administration procedures, discipline, distribution of personnel in support of the Naval Reserve and organization and planning for manpower mobilization procedures.

The Assistant Chief of Naval Personnel for Naval Reserve (PERS R) advises the Chief and Deputy Chief of Naval Personnel on matters related to the Naval Reserve which are under the purview of Bureau of Naval Personnel.

CHIEFS OF NAVAL EDUCATION AND TRAINING (CNET)

In his relationship to the Naval Reserve, CNET functions as a training support agency providing instruction, instructor training, quotas to naval schools for Selected Reservists, develops training standards, curricula, training aids and devices and provides technical advice, guidance and assistance to CNAVRES.

READY RESERVE

The Ready Reserve is composed of those members, not on active duty, who are subject to call to active service if a national emergency is declared by the President. Ready Reservists are also subject to call in event of war declared by Congress or when otherwise authorized by law. While members of the Ready Reserve are expected to be available for active duty immediately upon receiving orders, current policy provides that a reasonable time shall be allowed between the date a reservist is alerted or ordered to active duty and the date required to report for duty.

Participation or nonparticipation in a drilling program has no effect on the liability of a Ready Reservist for recall—all are equally liable. Under

the current concept of partial mobilization, however, those participating in Selected Reserve units are more likely to receive involuntary orders to active duty than are other reservists. Members who are serving voluntarily in the Ready Reserve must volunteer for a specific period of time (Ready Reserve Agreement).

Of the three reserve categories, only members of the Ready Reserve may receive pay for participation in reserve training.

SELECTED RESERVE

Within the Ready Reserve the Navy maintains Selected Reserve forces which are defined by the Joint Chiefs of Staff (JCS) as those units and individuals within the Ready Reserve that are designated by their respective service chiefs as so essential to initial wartime missions as to require a high degree of mobilization readiness.

The Selected Reserve provides Mobilization-Day (M-Day) Augmentation Forces—those forces, units, and individuals needed on M-Day—from drill pay personnel. It is composed of all drill pay units and assigned personnel, including their assigned ships and aircraft.

This availability of a trained and ready Selected Reserve with the capability of meeting mobilization contingencies from a limited emergency to full mobilization is the basis of the Navy's readiness posture. The Selected Reserve, as the initial and primary source of active fleet augmentation immediately deployable upon mobilization, must be continuously combat ready and immediately responsive in times of crisis.

INDIVIDUAL READY RESERVE (IRR)

Limitation of billets available in the pay programs of the Selected Reserve, absence of drilling units within commuting distance, conflicting employment and other factors may preclude reservists from participating in Selected Reserve training programs in a drill pay status

even though they are members of the Ready Reserve.

The IRR is composed of those members in the Ready Reserve who are not in the Selected Reserve. These reservists remain within the Navy's mobilization potential. Assignment to the IRR does not preclude participation in one or more aspects of the Naval Reserve training program. Correspondence courses are available to both officer and enlisted personnel, enabling them to prepare for promotion and advancement.

Within the limitation of funds, personnel in the IRR who have maintained an active status may take 12 to 14 days ACDUTRA annually.

STANDBY RESERVE

The Standby Reserve consists of reservists who have been transferred from the Ready Reserve after having fulfilled certain requirements established by law. Ready and Standby status differ mainly in the degree of liability for recall to active duty. Standby reservists can be ordered to active duty without their consent only in the event of war or an emergency declared by Congress or when otherwise authorized by law. The Navy cannot recall a standby reservist to active duty involuntarily until the Director of the Selective Service has determined the availability for duty.

Standby Reserve, Active

In accordance with Department of Defense (DOD) policy the active status list of the Standby Reserve is composed of reservists who:

1. have completed 5 years of satisfactory active/selected reserve participation and have requested transfer to the Standby Reserve-Active for the final year of the 6-year military service obligation.

2. are being retained in an active status under Section 1006, Title 10, United States Code (officers credited with at least 18 but less than 20 years satisfactory Federal service toward retired pay for non-regular service).

3. have been screened from the Ready Reserve as Key Federal Employees.

4. may be temporarily assigned to the Standby Reserve for hardship or other reasons with the expectation of being returned to the Ready Reserve.

Standby Reserve, Inactive

The Standby Reserve-Inactive (also described as the Inactive Status List or ISL) consists of those reservists who have been screened from the Ready Reserve because of failure to maintain a satisfactory level of participation and/or those individuals who have allowed their Ready Reserve Agreement to expire while in this category. While in this category a member is not authorized to participate in training programs, earn retirement points or be considered for promotion. Reservists transferred to the Standby Reserve-Inactive may apply for reinstatement in the Ready Reserve at any time within the following 3 years. Those members who do not voluntarily return to a Ready Reserve status will be discharged or transferred to a retired status, as appropriate to the individual case, at the completion of the 3-year period.

Members on the inactive status list may be called to active duty under the same conditions as other members of the Standby Reserve but only when it has been determined that adequate numbers of qualified personnel in active status (Ready and Standby Reserve-Active) are not available.

RETIRED RESERVE

The Retired Reserve-Inactive (USNR-RET) consists of reservists who (1) are drawing retired pay, (2) are qualified for retired pay upon reaching age 60, or (3) will not qualify for retired pay at any time but need service or other requirements for voluntary assignment to the Retired Reserve in recognition of their contribution to the Navy. Their liability for active service is the same as the Standby Reserve.

NATURE OF RESERVE TRAINING

Training in the Selected Reserve is an on-going process and continues throughout the year. The nature of the training a reservist receives depends on individual designator/rating, job skill and the type of unit to which attached. Training takes place during both the unit drills and while the reservist is performing ACDUTRA. A drill is a period of training authorized for members of the reserve on inactive duty. Drills are performed in either a pay or non-pay status.

Members of the Selected Reserve normally are scheduled for and perform either 24 or 48 drills each year. Each "drill" consists of a 4-hour time period. For most units regularly scheduled drills are conducted one weekend per month. This multiple drill permits a greater concentration of effort and extended involvement. In some instances, the unit's mission and/or configuration is better served by drilling one evening a week.

Certain units are scheduled for Weekend Away Training (WET) at fleet training sites or aboard ship.

Selected individuals and units (e.g., flightcrews, certain critical units) may be authorized to perform additional paid drills to maintain peak efficiency and/or complete their assigned mission. The number of regularly scheduled or additional paid drills may vary with need and the availability of funds.

Although not members of the Selected Reserve, Ready Reservists in the IRR category and members of the Standby Reserve-Active, may participate in regularly scheduled drill periods on a voluntary basis. Such members are ineligible for drill pay but may otherwise participate in training programs and earn retirement points by their participation.

ACTIVE DUTY FOR TRAINING

ACDUTRA for members of the Selected Reserve is carefully coordinated with their drilling sessions to provide the practical experience that will clarify or supplement other

instruction. Shipboard training is provided wherever feasible and appropriate with both Naval Reserve Force and active fleet ships serving as training platforms for reservists who report as units, teams, or as individuals.

ACDUTRA for a minimum duration of 12 to 14 days is required of all members of the Selected Reserve and for many individuals of the Ready Reserve depending on the type of training category to which they are assigned within the IRR. Selected Reserve units usually perform their ACDUTRA as a unit. This enhances their ability to perform the unit's assigned mission. Although unit ACDUTRA is the ideal goal, individual ACDUTRA for members of the Selected Reserve may be authorized in certain circumstances.

While serving on ACDUTRA, reserve units receive training and practical experience to maintain skills at active fleet standards. Unit, team, and individual readiness are emphasized. Important team skills may be developed through combined exercises that involve reserve and active air, surface, and subsurface groups in under-way operational problems and exercises.

Aviation Reserve squadrons designated to mobilize with their aircraft normally perform their ACDUTRA at a fleet base under the cognizance of the fleet commander to whom they report on mobilization. During this period reserve squadrons receive a modified fleet operational readiness inspection.

In addition to ACDUTRA, all aviation squadrons periodically participate in fleet operational exercises alongside their regular Navy counterparts. Special ACDUTRA is granted for this purpose. This integration with fleet units permits reserve squadrons to participate in surveillance patrols and other routine operations and combines training with actual support of fleet activities.

Ready Reservists in the IRR category or members of the Standby Reserve-Active may volunteer to perform active duty for training.

In addition to ACDUTRA aboard ships, numerous possibilities exist for training ashore where the reservist may receive practical experience or study new procedures through formal instruction.

When a reservist is required to perform ACDUTRA, full pay and allowances plus travel expenses are received. When performed on a voluntary basis, ACDUTRA may be without pay, travel and allowances depend upon the availability of funds. However, ACDUTRA performed by members in the Standby Reserve-Active category must be without pay or other allowances.

RETIREMENT POINT CREDIT

To qualify for retired pay, a member of the reserve forces must be credited with at least 30 retirement points a year for 20 years. The total number of points earned is a factor in computing retirement pay. If otherwise eligible, the member may begin drawing retirement pay at age 60.

Earning 35 retirement points per year satisfies the requirement because a reservist is allowed 15 gratuitous points for maintaining active status. The reservist is credited with 1 retirement point for each day of active service whether it is extended active duty or ACDUTRA. When not on active duty, a member receives 1 retirement point for each complete month of drill. He may earn additional points for completing approved correspondence courses from the Naval Education and Training Program Development Center, other Navy sources or from the other Armed Forces. If a member has been assigned an appropriate number of retirement points. When not on extended active duty, the member may be credited with a maximum of 60 points per year plus the points received for ACDUTRA.

NAVAL RESERVE PROGRAMS

Considerations of the total force posture demand that the Naval Reserve assume responsibility for providing crucially needed first-reaction capabilities required by the active forces in an emergency. The Naval Reserve has been organized to more effectively satisfy the most urgent demand. The Selected Reserve structure is almost entirely composed of mission-capable, task-performing, recallable

units. These units are specifically tailored to provide capabilities for the active Navy as part of a committed force or to fill in behind that force in supporting and sustaining a maximum tempo of operation. With these combat and combat support units the Naval Reserve can respond effectively in any contingency from small "brush fire" emergencies to the vital first step capabilities needed in reacting to major conflicts involving full or total mobilization.

The structure of the Naval Reserve contains 11 basic programs that parallel those of the active Navy:

- Program 1 - Submarine Force Program
- Program 2 - Mine Forces Program
- Program 3 - Mobile Logistics Support Program
- Program 4 - Surface Combatant Forces Program
- Program 5 - Air Forces Program
- Program 6 - Cargo Handling Forces Program
- Program 7 - Construction Forces Program
- Program 8 - Amphibious Forces Program
- Program 9 - Marine Corps Forces Program
- Program 10 - Naval Inshore Warfare Forces Program
- Program 11 - Special and General Support Program

The first 10 programs (major mission/platform programs) are mission-oriented and relate directly to ships, aircraft and/or hardware, and their direct support. Program 11 involves a number of specializations and is divided into subprograms such as law, medicine, ship systems, fleet commands staffs, intelligence, supply systems, etc.

Each program and subprogram is under the sponsorship of a Navywide manager, which is

usually the office or command that provides technical advice and assistance in both the administration of the program and in the execution of training essential to meet the mobilization requirements with which the program is identified.

The appropriate office of CNO acts as sponsor for each Naval Reserve program with the exception of Program 6, Cargo Handling Program sponsored by Naval Supply Systems Command; Program 7, Construction Forces Program sponsored by Naval Facilities Engineering Command; and Program 9, Marine Corps Forces Program sponsored by the Commandant of the Marine Corps. Technical guidance is provided by an assigned Reserve Program Technical Manager.

UNIT CLASSIFICATIONS

Selected Reserve units are grouped in three basic categories, each with its own mission and mobilization element. These primary categories are supplemented by other Selected Reserve units and individuals of the Ready Reserve as described below:

CATEGORY I—Units with Organic Equipment. A self-contained unit designed to provide complete capabilities upon recall, i.e., a ship, squadron or battalion. Selected reservists fill all manpower requirements but may be combined, as in many instances, with an active duty nucleus. Each unit has its own hardware, which it "owns and lives with," or will use predesignated hardware upon recall. Hardware required varies from weapons systems, ships, and aircraft to equipment and tools necessary for mission performance.

CATEGORY II—Augmentee Units for Active Navy Ships, Squadrons, and Mobile Units. A mission-oriented, task-performing augmentation unit with a mix of specific skills needed to bring an active duty Navy operating platform (a ship or aircraft squadron) up to organizational (battle) manning or full complement. It is tailored to a specific ship class or aircraft squadron type, and operates equipment and uses facilities of the parent unit.

CATEGORY III—Augmentee Units for Shore Establishment. These units, similar in character to Category II, represent the mobilization billets required to bring the shore establishment to organizational manning. Category III activities are geographically fixed rather than mobile units. Each is tailored to augment a specific type non-platform activity, such as shipyard, air station or staff. They normally operate the equipment and use the facilities of the mobilization activity. It is noted that the requirements of this category are equally important in the accomplishment of the wartime mission as are the combat requirements.

In some instances units of the three primary categories are unable to fill all authorized mobilization billets due to a lack of required skills within their particular geographic locations. Additional units are organized in these areas where the necessary skills are available and provide a source of selected reservists for immediate mobilization as individual augmentees for the three primary categories. Upon mobilization, they would join with Selected Reserve units from other locations at the appropriate mobilization site.

In addition to the units of the Selected Reserve, there are volunteer units which provide meaningful and productive training for qualified Ready Reservists who are required for full mobilization but who are not members of the Selected Reserve. These personnel remain affiliated with the Naval Reserve in an active capacity and are available for recall in accordance with public law. These units train in a non-pay status and serve as a skill resource from which billets in the Selected Reserve can be filled as vacancies develop.

SURFACE PROGRAMS

Reserve Surface Programs include both afloat and ashore programs and training systems development. Afloat and shore programs are composed of units within the categories noted previously as well as volunteer units of Ready Reservists.

The afloat program includes units assigned missions as or in surface combatants, mine

warfare, submarine and service forces, amphibious and inshore undersea warfare.

The ashore organization contains such programs as construction forces, cargo handling, supply, medical, dental, security groups, telecommunications, law, public affairs, and other specialties under Program 11.

Selected Reserve units within Categories I, II, and III all have specific missions and/or assignment upon mobilization. Upon mobilization, Selected Reserve units will be recalled to active duty as units. Other members of the Ready Reserve will be individually recalled to fill specific mobilization requirements in addition to those established for the Selected Reserve.

Selected Reserve units are sized in direct relationship to the mobilization requirements of the active fleet. Although some ship-type units utilize Naval Reserve Force ships for training, most drilling reservists designated as "fleet augmented" use active fleet hardware for ACDUTRA.

Reserve centers serve as the primary training sites for most of the surface reserve. These activities may be utilized entirely by the Naval Reserve or shared with other military services.

Assigned to each reserve center are officers and enlisted personnel who are on full-time active duty. The enlisted personnel support the various training programs and maintain the reserve centers. They cooperate with and supplement the work of the officers and petty officers of the individual drilling units who assume major responsibilities for the training of their own units.

The centers are supplied with equipment for training in various areas (e.g., shops, radio, gunnery, damage control). A new dimension is being added to the surface training environment through the installation of Shipboard Simulators (SBS). These trainers are capable of simulating various shipboard functions (command and control, bridge, damage control, engineering and communications) aboard a number of different ship types. Working closely with the Chief of Naval Education and Training, surface reserve planners are continually upgrading the training capabilities of the reserve centers.

A continuing challenge to the surface reserve program has been the geographic distance of

inland units from fleet installations. In addition to improving onsite training as noted above, the Navy and Air Force airlift these reservists to their key training platforms for Weekend Away Training (WET).

Surface planners, along with CNO and elements of the active fleet, are identifying and developing new and expanded missions for the Naval Reserve which complement total force requirements. A prime example of such mission-oriented units is the Mobile Inshore Undersea Warfare (MIUW) units. When reserve MIUW units are fully equipped and trained, they will represent almost 100% of the Navy's total inshore undersea warfare capability.

The twin goals of the surface reserve programs are readiness and responsibility. In obtaining these goals, the surface reserve will be a full and equal partner with the active forces in the defense of this nation.

AIR FORCES PROGRAM

The Naval Air Reserve Force is a command entity under the Chief of Naval Reserve charged with the responsibility for providing mission-capable, task-performing units available for immediate mobilization and deployment as may be dictated by the contingency. It is an operating command of the Chief of Naval Operations under the direction of Commander Naval Air Reserve Force. The Air Program's sponsor, representative and technical manager, is the Deputy Chief of Naval Operations for Air Warfare. In this event of full or partial mobilization, wings, squadrons, and units would be assigned as needed by CNO to various active fleet-type commanders as an integral part of their command.

Composition and size of the Naval Air Reserve Force are determined by high level defense planners based on the needs of the active forces to meet various contingencies. Currently, this force consists of two carrier air wings, a helicopter wing, two patrol wings, a tactical support wing and approximately 200 various other direct and indirect support units. All are organized along active fleet lines.

Air reserve squadrons normally operate their own assigned aircraft and equipment making them a striking example of the

hardware-oriented type of reserve which the total force Navy requires. Squadrons are, for the most part, equipped with combat-deployable, fleet-compatible aircraft. A continuing program is in existence to ensure that units are re-equipped, and retrained to the most current fleet requirements consistent with mission objectives and budgetary constraints.

Women play a significant role in the Air Programs. They serve in patrol and transport squadrons as well as noncombat units in billets for which they are qualified. Women pilots and aircrew members, of which there are a growing number, may be assigned to flying billets in transport squadrons.

By virtue of the mission, complexity of the equipment and inherent problems in the operation and use of such systems, training in the Naval Air Reserve Force is extensive and continuous to reach and maintain a high state of readiness. Training is conducted at Naval Air Stations, facilities and satellite activities (Naval Air Reserve Units and Detachments) throughout the United States. Currently the Naval Reserve "owns and operates" air stations, an air facility and is tenant at several regular Navy activities which comprise the flying sites and non-flying activities around the nation. They are staffed by active duty personnel, and their commanding officers report to the Chief of Naval Reserve. Squadrons/units assigned to each activity enjoy a tenant/host relationship with base support and services provided by the activities.

SPECIAL AND GENERAL SUPPORT PROGRAM

The Special and General Support Program was established to provide mission-capable, task-performing units and individuals whose specific skills and expertise will be required by the Navy in the event of an emergency. They are Selected Reserve units and are available for immediate mobilization. These programs include the scientists, engineers, professional specialists, program coordinators, educators, service and general support personnel without which the combat forces could not be expanded or sustained.

It should be recognized that these programs are not finite. The Navy is a flexible force as it

NAVAL ORIENTATION

must be to keep pace with an advancing, changing world. New skills and expertise may be identified and others modified which may cause additions, deletions, or changes in these programs.

The Naval Reserve is a full partner with the active forces. The existence of task-oriented, mission-capable units has made the Naval Reserve a vital and contributing participant in the defense of the nation.

CHAPTER 13

SHIPBOARD ORGANIZATION

A warship's manning is composed of such numbers, grades, and ratings of officers and enlisted personnel as are necessary to fight the ship most efficiently. The ship's organization is essentially a war organization, developed on the theory that ships should operate in peacetime with an organization that can be expanded quickly without basic change when the transition to a wartime operating condition becomes necessary. It is based on a grouping of functions and personnel that is intended to reduce to a minimum both the possible overlapping of responsibility within the command and the duplication of personnel.

Guidance in the preparation of the standard ship's organization for all types of ships is provided by the Ship's Manning Document and the effective edition of Standard Organization and Regulations of the U.S. Navy (OPNAVINST 3120.32).

ADMINISTRATIVE ORGANIZATION

The basic shipboard departments are navigation, operations, weapons (or deck), engineering, and supply. There may be a number of others, however, as can be seen in figure 13-1.

The most common types of naval ships in service are included in the table of departmental organization (figure 13-2), which is used in determining the departments that must be included in the administrative organization of a particular ship type. Variations should occur only in exceptional circumstances. The Chief of Naval Operations authorizes the establishment of such other departments as are found necessary.

Ship's Manning Documents and OPNAVINST 3120.32 serve as guides for type commanders in preparing detailed standard type administrative and battle organizations for their ships. A type commander has command of a group of ships of a particular type or types; for example, Commander Surface Force, U.S. Atlantic Fleet and Commander Submarine Force, U.S. Pacific Fleet.

In preparing type organizations, type commanders allow for missions and other considerations peculiar to the type and also the quality and quantity of personnel available. Administrative and battle organizations prepared by corresponding type commanders in different fleets are coordinated through their fleet commanders and are made similar for the same types and classes of ships. The organization described in this chapter is, in general, that of a large fighting ship.

COMMANDING OFFICER

The responsibility of the commanding officer for his command is absolute except when and to the extent he is relieved therefrom by competent authority. His authority is commensurate with his responsibility, subject to the limitations prescribed by law and regulations. While he may delegate authority to his subordinates for the execution of details, such delegation of authority in no way relieves the commanding officer of his continued responsibility for the safety and efficiency of his entire command.

In the discharge of his duties, the commanding officer is assisted by the executive officer, who acts as his direct representative.

The commanding officer must exert every effort to maintain his command in a state of maximum effectiveness for war service consistent with the required degree of readiness. He issues the necessary directions to his executive officer who, in turn, with the assistance of the various department heads, prepares and conducts exercises and drills required to bring about the necessary proficiency.

The details of training and education of the ship's company are responsibilities that the commanding officer delegates to his executive officer. All ships must have an organized program for shipboard training.

During action, the commanding officer is required to engage the enemy and fight to the best of his ability. He must not disengage until the action is complete.

The commanding officer's battle station is that station from which he can fight the ship to best advantage. In case of the loss of his ship, both custom and regulations require that the commanding officer assure that abandon ship procedures are completed and all personnel are off the ship before he leaves.

The commanding officer supervises the conduct of all persons under his command. Should he not suppress unlawful activities or conduct, he himself is subject to trial by court-martial. In the investigation of offenses and the assignment of punishments, he cannot delegate his authority. He is required to have specified articles of the Uniform Code of Military Justice published to the crew at stated intervals.

The commanding officer's position is quasi-judicial. It is, in fact, legislative, judicial, and executive. His power is authoritarian and complete and has been so from time immemorial. He has ultimate responsibility for the ship and everything pertaining to the ship. Obviously, that great responsibility requires commensurate authority. It is essential to efficiency and discipline that a commanding officer have the power to enforce prompt obedience to his orders. By the Uniform Code of Military Justice, the power is vested in the commanding officer to impose limited

punishment. This power is an attribute of command and may not be delegated to a subordinate.

The welfare, morale, and living conditions of the crew are a commanding officer's constant concern. To assist him in these matters he appoints a master chief petty officer of the command (MCPOC) as an enlisted advisor. The medical officer assists him in maintaining the ship in a sanitary condition, and provides for proper care and isolation in the case of infectious diseases.

If the officer regularly ordered to command the ship is absent, disabled, relieved from duty, or detached without relief, the command devolves upon the line officer next in grade who is regularly attached to and on board the ship, and who is eligible for command at sea (this excludes such officers as may be restricted to the performance of engineering or other special duties).

EXECUTIVE OFFICER

The executive officer functions as an aide or executive to the commanding officer. He is detailed as such by the Chief of Naval Personnel. As the next ranking officer aboard ship, he is the direct representative of the commanding officer in maintaining the military and general efficiency of the ship. The executive officer has no authority independent of the commanding officer, and the details of his duties are regarded as execution of the captain's orders. All heads of departments and other officers and enlisted personnel are under the executive officer's orders in all matters pertaining to operation and maintenance of the ship and to the preservation of order and discipline on board.

Under the commanding officer, the executive officer is responsible for the ship's administration, routine, and efficiency in such matters as—

1. Coordination and supervision of all departments.
2. Maintenance of morale, welfare, and discipline.
3. Assignment of personnel and maintenance of their records.

NOTES

1. IN THOSE SHIPS WITH AN X DIVISION, THE PERSONNEL ASSIGNED TO THE POST OFFICE SHALL BE ASSIGNED TO THE X DIVISION. FOR SHIPS WITHOUT AN X DIVISION, PERSONNEL ASSIGNED TO THE POST OFFICE SHALL BE ASSIGNED TO THE OPERATIONS DEPARTMENT FOR MILITARY AND ADMINISTRATIVE FUNCTIONS.
2. THE COMMUNICATION FORCE OF A FLAGSHIP SHALL BE UNDER THE DIRECTION OF THE COMMANDER EMBARKED. MAJOR COMBATANTS HAVE A SEPARATE COMMUNICATIONS DEPARTMENT.
3. WHEN NO MEDICAL OFFICER IS ASSIGNED, HOSPITAL CORPS PERSONNEL SHALL BE ASSIGNED TO THE X DIVISION FOR MILITARY AND ADMINISTRATIVE FUNCTIONS. (If a unit is not authorized an X division, hospital corps personnel shall be assigned to the supply or operations department for military and administrative functions.) THE MEDICAL REPRESENTATIVE SHALL BE DIRECTLY RESPONSIBLE TO THE COMMANDING OFFICER FOR MEDICAL FUNCTIONS AND SHALL REPORT TO THE EXECUTIVE OFFICER FOR TECHNICAL CONTROL.

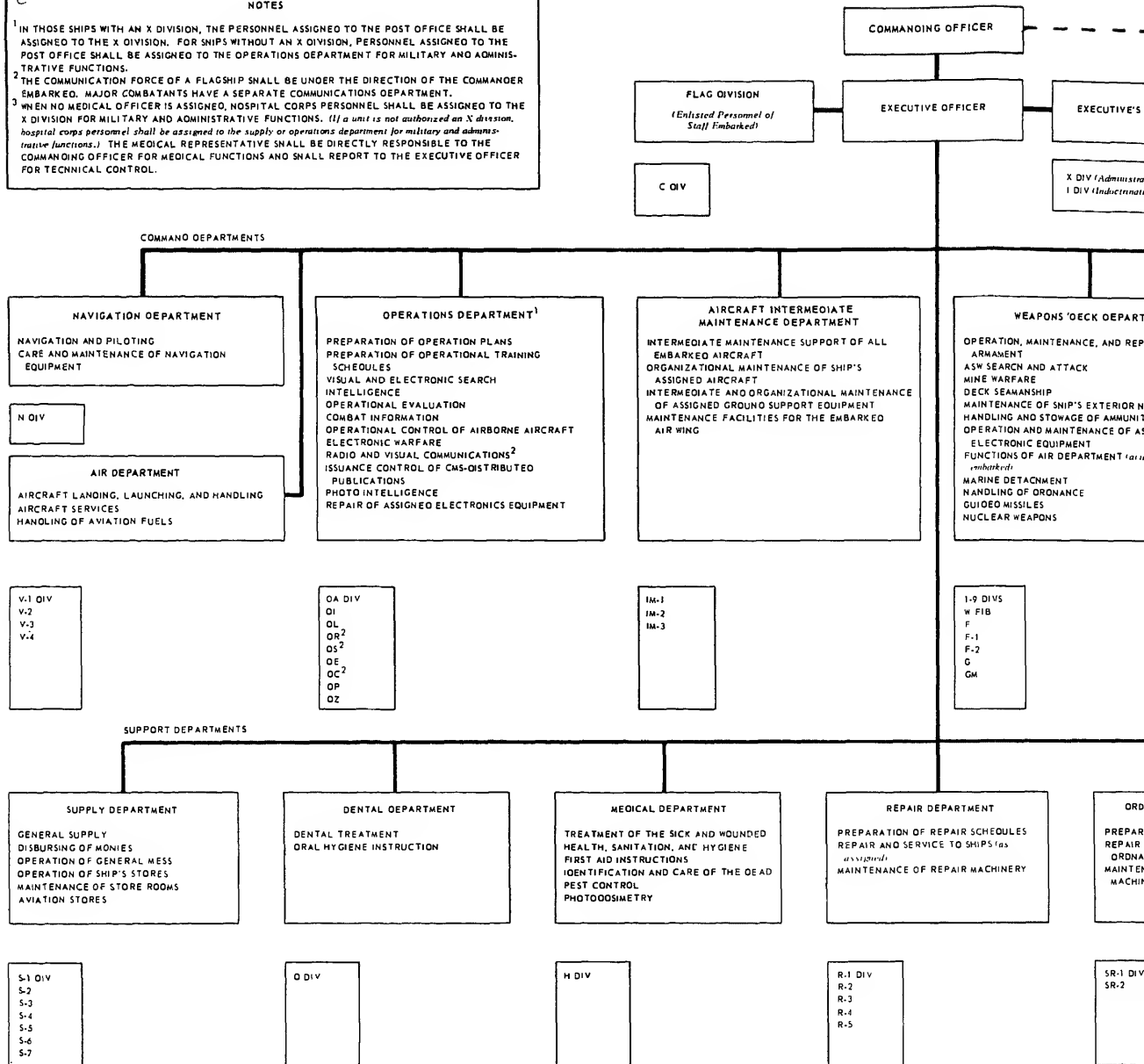


Figure 13-1.—Shipboard organization.

DEPARTMENT ORGANIZATION																
SHIP TYPES	MAJOR COMMAND DEPARTMENTS											STAFF DEPTS.			SPECIAL	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
	NAVIGATION	OPERATIONS	WEAPONS	DECK	ENGINEERING	AIR	AIRCRAFT INTERMEDIATE MAINTENANCE	COMMUNICATIONS	REACTOR	SAFETY	AVIATION	SUPPLY	MEDICAL	DENTAL	REPAIR	ORDNANCE REPAIR
Amphibious																
LCC	X	X		X	X			X				X	X	X		
LPA LKA	X	X		X	X			X ³				X	X	X		
LPD	X	X		X	X	X		X ⁴				X	X			
LPH LHA	X	X	X	X	X	X	X	X				X	X	X		
LSD	X	X		X	X							X				
LST	X	X		X	X							X				
Carriers	X	X	X	X	X	X	X	X	X ¹	X		X	X	X		
Cruisers	X	X	X		X			X ⁵	X ¹		X ⁶	X	X	X		
Destroyers	X	X	X		X			X ⁵			X ⁶	X				
Mine Warfare	X	X		X	X							X				
MSO MSC	X	X		X	X							X				
Patrol	X	X	X		X							X				
Submarines	X	X	X		X							X	X			
Auxiliary																
AD	X	X		X	X			X ⁸				X	X	X	X	
AE	X	X		X	X						X ⁶	X	X			
AF	X	X		X	X							X	X			
AFS	X	X		X	X						X ⁶	X	X			
AH ⁹	X	X		X	X								X			
AO	X	X		X	X								X			
AOE	X	X		X	X						X ⁶		X	X		
AOG	X	X		X	X								X			
AOR	X	X		X	X						X ⁵		X	X		
AR	X	X		X	X							X	X	X	X	
ARS	X	X		X	X							X				
AS	X	X		X	X			X				X	X	X	X	X
ASR	X	X		X	X							X				
ATF/ATS	X	X		X	X							X				
AVM		X	X		X							X				

NOTES

- On small ships, the navigation department shall be integrated into the operations department for administrative and ship report to the navigator for technical control.
- On some small ships, supply duties may be delegated to a line officer and as such he shall become a department head.
- On flag-configured ships only.
- On those ships having reactors.
- Applies to flotilla flagships only.
- When a LAMPS/VERTREP detachment is embarked.
- On small ships, the communications department may be integrated into the operations department.
- On AD 37 class only.
- On hospital ships, the medical and dental departments are integrated with the hospital.

Figure 13-2.—Shipboard departmental organization.

4. Preparation and maintenance of ship's bills and orders.
5. Supervision and coordination of work, exercises, training, and education.
6. Supervision of loading and berthing plans.
7. Supervision of ship's correspondence.

With the assistance of department heads, the executive officer arranges and coordinates all ship's work, drills and exercises, the personnel organization, policing of the ship, and inspections of the ship. He is charged with the maintenance and cleanliness, good order, and the trim appearance of ship and crew.

The executive officer keeps in close touch with all activities of the ship and supervises department heads in the performance of their duties, including the instruction of junior officers.

The executive officer is responsible for the accuracy of entries made in the crew's service records. He investigates, or causes to be investigated, matters involving conduct and breaches of discipline; and he usually approves and disapproves all liberty lists and leave requests.

He exercises general supervision whenever all hands are called for any particular duty, exercise, or evolution, except during action. Except on small ships, he is not required to stand a watch; but he may relieve the officer of the deck for short periods as a matter of accommodation or whenever required for the safety of the ship.

If the executive officer is incapacitated or otherwise unable to carry on, his duties are normally assumed by the next senior officer of the line assigned to the ship.

When the ship is cleared for action, the executive officer inspects it, receives reports from the various departments, and in turn reports to the commanding officer that the ship is, in all respects, ready. In case the captain is incapacitated, the executive officer becomes the acting commanding officer. For this reason his battle station, determined by the captain, is

preferably located some distance from the captain's—a safety measure to prevent simultaneous disablement of both officers. It is usually in the secondary ship control station, and from there he maintains communication with the primary control station. After battle, the executive officer makes a detailed report to the commanding officer, citing all details of the action observed, together with a statement of the conduct of subordinates in praise or censure as the case may be.

Executive's Assistants

The standard organization and regulations manual shows the personnel that may be assigned under the executive officer to assist him in the performance of varied duties. The size of the executive's organization depends on the size of the ship and the number of officers available for assignment to those duties. These assistants, along with a description of their basic duties, are as follows:

The **ADMINISTRATIVE ASSISTANT** assists the executive officer in details of administration.

The **PERSONNEL OFFICER** assigns enlisted personnel in accordance with the personnel assignment bill and is responsible for the administration and custody of enlisted service records. The billets of personnel officer and administrative assistant may be combined.

The **EDUCATION SERVICES OFFICER** assists the executive officer in administering the shipboard educational programs. He publicizes, usually through division officers, educational opportunities available and counsels and assists those who wish to enroll in courses. Duties in connection with officer and enlisted correspondence courses, Navy rate training manuals, and other matters of an essentially professional nature may be assigned to the educational services officer or the training officer.

The **SHIP'S SECRETARY** is responsible for the administration and accountability of ship's correspondence and directives, and for the administration and custody of officers' personnel records. As captain's writer, he

supervises preparation of the commanding officer's personal correspondence. The ship's secretary normally is a junior officer; on small ships he may be a senior petty officer in one of the clerical ratings.

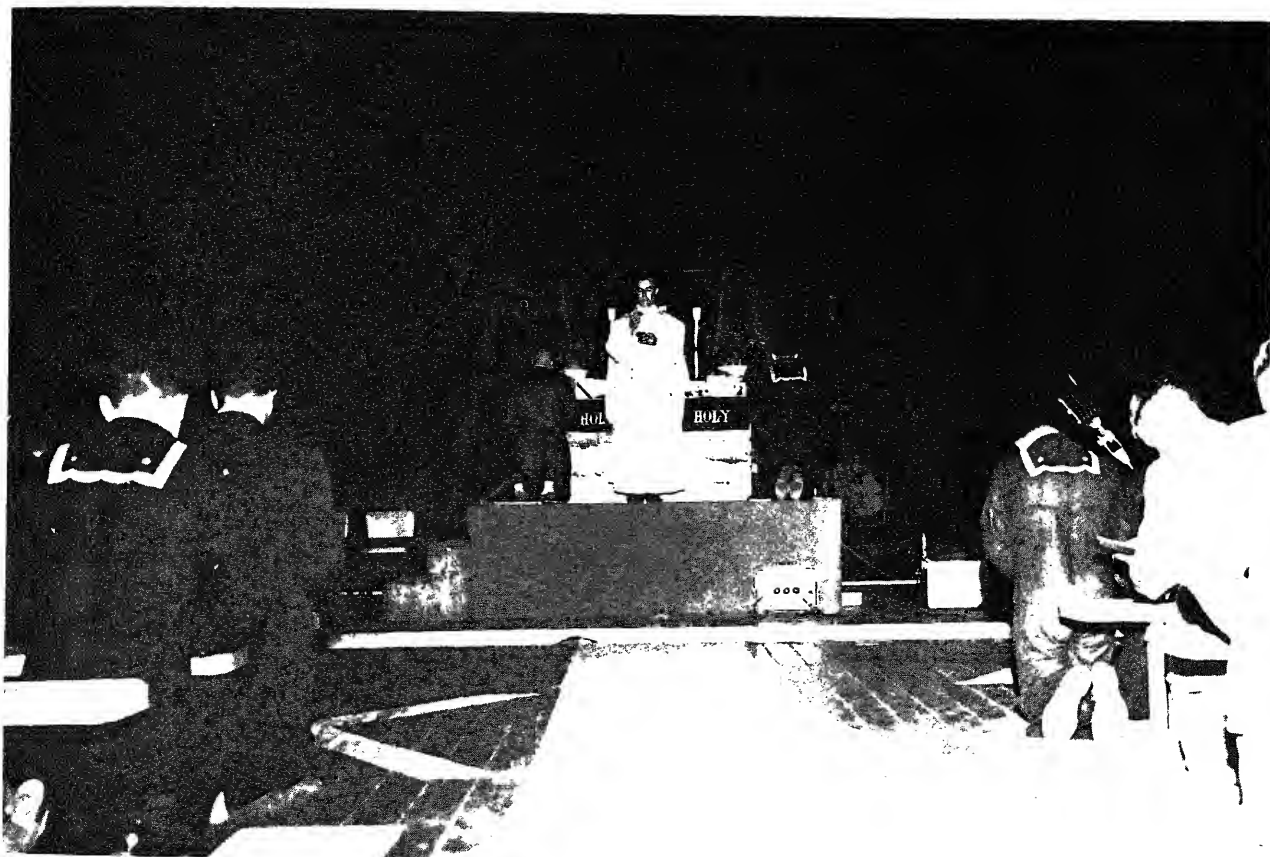
The CHAPLAIN, who is detailed to duty under the executive officer or chief of staff, as appropriate, is responsible for the performance of all duties relating to religious activities of the command (figure 13-3) and for ministering to the spiritual needs of the ship's personnel.

A TRAINING OFFICER may be designated by the commanding officer to assist the executive officer with his training duties. As a member of the planning board for training, he assists in the formulation of training policies and training programs.

The LEGAL OFFICER functions as an adviser and staff assistant to the commanding officer and executive officer in the maintenance of discipline and the administration of justice. Although many legal officers are graduates of the Naval Justice School, it is not necessary that they have any formal legal training.

The PUBLIC AFFAIRS ASSISTANT carries out the public affairs program of the ship. His main duties are to keep the commanding officer and executive officer informed concerning public relations and to supervise preparation of material for release.

The principal responsibility of the POSTAL OFFICER is to ensure efficient administration of mail services to the command.



134.67

Figure 13-3.—The primary responsibility of the chaplain is to minister to the spiritual needs of command personnel. Here the ship's chaplain celebrates midnight mass.

The COMBAT CARGO OFFICER on amphibious-type ships assists the executive officer in matters concerning embarkation and debarkation of troops; loading, stowage, and unloading of troop cargo; billeting and messing of embarked troops; and the performance of necessary liaison with troop units.

The SPECIAL SERVICES OFFICER administers the special services program of the ship, comprising all organized welfare, recreational, and athletic activities not assigned to other officers or departments.

Under the direction of the executive officer, the SENIOR WATCH OFFICER is responsible to the commanding officer for assignment and general supervision of all deck watchstanders, both underway and in port. He coordinates and directs the training of deck watch officers. He prepares officer deck watch bills for the commanding officer's approval and enlisted deck watch bills for the executive officer's approval.

The CHIEF MASTER AT ARMS (CMAA) is responsible for enforcement of regulations, maintenance of good order and discipline, and the security and welfare of brig prisoners.

HEADS OF DEPARTMENTS

The number of departments included in a shipboard organization depends on the type of ship for which the organization is prepared. As seen in figure 13-1, departments are grouped together as either command or support departments. Except in isolated instances, an officer heading a command department is a line officer eligible to exercise command in the event of the loss of his superior officers. In aircraft carriers, the operations and air departments are headed by naval aviators.

The head of a department is the representative of the commanding officer in all matters that pertain to the department. All persons assigned to the department are subordinate to him and all orders issued by him are obeyed accordingly. In the performance of his duties as a head of department, he conforms to the policies and complies with the orders of

the commanding officer. Department heads have certain common duties and responsibilities.

A department head reports to the commanding officer for the operational readiness of his department, the general condition of his equipment, and any other matters relating to his department whenever he believes such action necessary. He reports to the executive officer for administrative matters and keeps the executive officer informed of reports made to the commanding officer.

The department head's duties and responsibilities cover a broad area. He assigns personnel to stations and duties within the department and organizes and trains his personnel to ensure readiness for battle. He is responsible for the proper operation, care, preservation, and maintenance of his department's equipment as well as the cleanliness and upkeep of spaces assigned. He frequently inspects both personnel and equipment and takes action to correct any laxity or malfunction.

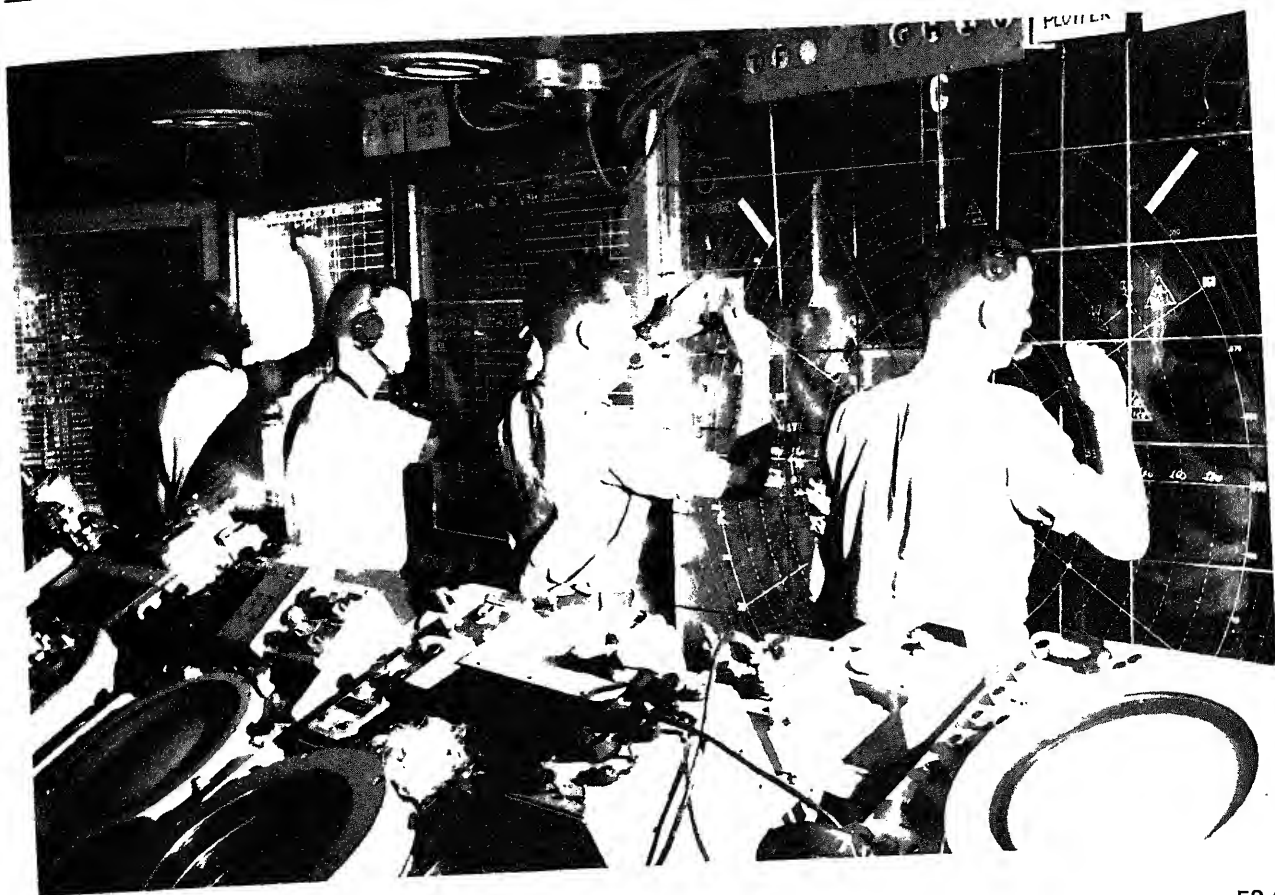
He prepares bills and orders for the organization and operation of the department. He controls the funds allotted, and he is expected to be economical in their use. He must anticipate personnel and material needs and submit timely requests to fulfill requirements. Records must be kept and reports submitted by every department to ensure an efficient overall organization. It is the department head's duty to see that these matters are not neglected. He also is expected to cooperate with other department heads so that the work of his department may be smoothly coordinated with that of the others.

In small commands, an officer may be assigned as head of more than one department.

Heads of departments and their principal assistants are assigned battle stations where they can best supervise and control the performance of duties regularly prescribed for them, or such specific battle duties as the commanding officer may assign.

Operations Officer

The operations officer is responsible, under the commanding officer, for the collection,



59.41

Figure 13-4.—Personnel assist the combat information center officer, who is responsible to the operations officer, by manning a plotting board (right) and status boards.

evaluation, and dissemination of combat and operational information (figure 13-4) and for all other assigned matters related to operations of the ship and designated airborne aircraft.

Specific functions of the operations department include—

1. Conduct of surface and air search.
2. Execution of electronic warfare.
3. Control of aircraft when airborne, except when this control is assigned to other authority.
4. Collection, display, analysis, and dissemination of intelligence information.
5. Preparation of operation plans and training schedules.
6. Conduct of underwater search and torpedo detection except on ships with antisubmarine armament installed.
7. Maintenance and repair of all electronic equipment of the ship except as assigned to another department.
8. Collection, interpretation, and dissemination of meteorological information.
9. In ships not having a communication department, the functions of that department.

In addition to the normal departmental administrative and training assistants, the operations officer may be assisted by the—

1. Air operations officer.
2. Air intelligence officer.

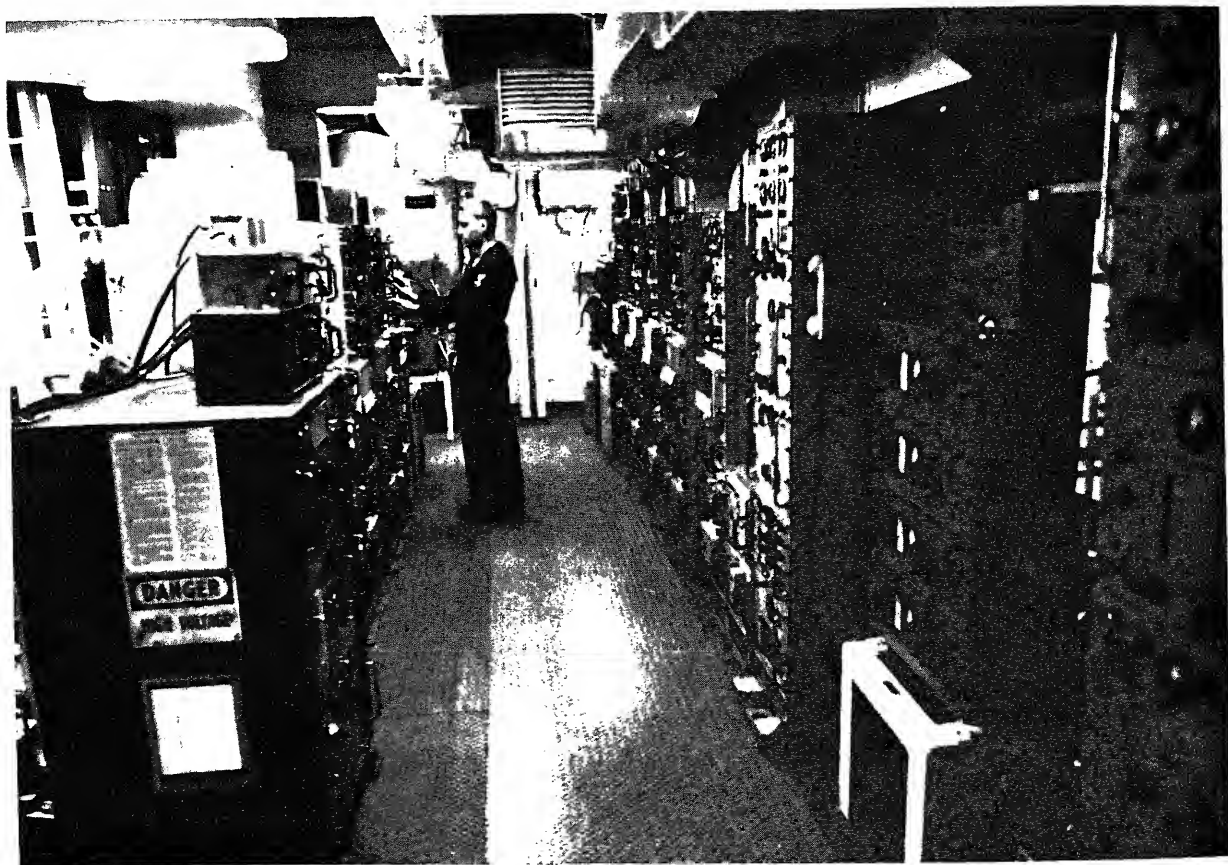
3. Intelligence officer.
4. Meteorological officer.
5. Combat information center officer.
6. Communication officer (when not a department head).
7. Electronic material officer.
8. Electronic warfare officer.
9. Photographic officer.
10. Strike operations officer.

Communications Officer

In most ships the communications officer is a division officer in the operations department. In some large ships, however, such as major communications relay ships and aircraft carriers,

he is a department head responsible directly to the commanding officer.

Whatever his administrative position, the communications officer is responsible for all visual and electronic exterior communications and communication equipment, and for administration of associated internal systems. He is responsible for the proper internal delivery of incoming messages and for the routing and delivery of outgoing messages. He must be thoroughly familiar with current tactical and communication publications. He is directly in charge of communications watch and signal officers, conducting their training and supervising their watchstanding. He should have at least a fundamental knowledge of the



158.30

Figure 13-5.—The communications officer, while he need by no means be a technician, is expected to acquire at least a fundamental knowledge of the technical aspects of shipboard communication equipment.

technical aspects of communication equipment (figure 13-5). He supervises the handling of communications Material Security (CMS) system publications issued to the ship and is responsible for secure and efficient cryptographic operations, including the supervision and training of crypto-operators.

The following officers, when assigned, report to the communications officer: radio officer, signal officer, CMS publications custodian, cryptosecurity officer, and traffic officer (message center).

Navigator

The navigator is directly responsible to the commanding officer for safe navigation of the

ship (although on small ships the navigation department is integrated into the operations department). Duties of the navigator include the following:

He advises the commanding officer and the officer of the deck as to the ship's movements and, if the ship is running into danger, as to a safe course to be steered. To carry out this phase of his responsibilities, he must maintain an accurate plot of the ship's position (figure 13-6) by astronomical, visual, electronic, or other appropriate means; study all available sources of information, prior to entering pilot waters, regarding navigation of the ship in such waters; and give careful attention to the course of the ship and the depth of water when approaching land or shoals. He maintains records of all



Figure 13-6.—Plotting a course in the chartroom. The navigator, who is responsible to the commanding officer for safe navigation of the ship, must maintain an accurate plot of the ship's position.

observations and computations made for the purpose of navigating the ship; reports the ship's position at such times as the commanding officer may request; and procures and keeps corrected and up to date all hydrographic and navigational charts, sailing directions, light lists, and other publications and devices for navigation as may be required.

He is responsible for operation, care, and maintenance of the navigational equipment. To this end he is required to determine daily, when the ship is underway and weather conditions permit, the error of the gyro and standard compasses. He reports the result in writing to the commanding officer. He compensates the magnetic compasses and prepares tables of deviations, copies of which are posted at the appropriate compass stations. He is responsible for the accuracy of the ship's chronometers and clocks. He ensures that electronic navigational equipment used by him is kept in proper adjustment and that calibration curves or tables are maintained and checked at prescribed intervals.

The navigator is responsible for the care and proper operation of the steering gear in general (except the steering engines and steering motors).

Daily, and more often if necessary, he inspects the deck log to ensure that it is properly maintained. He prepares such reports and records as are necessary in connection with his navigational duties, including those pertaining to the compasses, hydrography, oceanography, and meteorology.

It is also the navigator's responsibility to ensure the required navigational training of all personnel such as junior officers, boat coxswains, and boat officers. In addition, he is charged with the training of all quarterdeck personnel with respect to honors and ceremonies. Operations and navigation are combined on small ships and submarines.

Weapons Officer (or First Lieutenant)

All ships have either a weapons or a deck department, with the exception of aircraft carriers (CVs) which have both.

Ships (other than CVs) mainly concerned with offense through ordnance or aircraft have a weapons department headed by a weapons officer whose responsibilities also embrace those relating to deck seamanship. The weapons officer in such case is assisted by the first lieutenant. Other ships have a deck department headed by the first lieutenant who is assisted by the weapons officer. In small ships the duties of the two billets may be combined.

Organized aviation units regularly attached to and embarked in a ship not having an air department are assigned to the weapons department and make up the aviation division; these units retain their basic organization even when so assigned. An embarked Marine detachment is usually assigned to the weapons or deck department.

The weapons officer is responsible for the operation and maintenance of the ship's armament and fire control equipment; the stowage and care of ammunition including magazines and sprinkler systems; the planning and directing of seamanship evolutions through the first lieutenant; and the care of the ship's exterior except those areas assigned to another department.

The following officers may assist the weapons officer or first lieutenant (bearing in mind that, except in CVs, the first lieutenant always is an assistant to the weapons officer and vice versa):

1. Gunnery officer.
2. Missile officer.
3. Ordnance officer.
4. Antisubmarine warfare officer.
5. Fire control officer.
6. Torpedo officer.
7. Nuclear weapons officer.
8. Commanding officer, Marine detachment.
9. Senior aviator (in ships not having an air department).
10. OIC of antisubmarine helicopter detachment (LAMPS), when embarked.
11. Ship's boatswain.

Commanding Officer, Marine Detachment

The commanding officer of the ship's Marine detachment, although not a department head, occupies a somewhat similar position with respect to the administration of the Marines aboard in matters pertaining strictly to the Marine Corps. In a dual role, he is also one of the division officers of the weapons department, inasmuch as the Marine detachment is a regular part of the ship's company.

The Marine detachment commander is responsible to the ship's captain for the efficiency of his detachment and for the phases of the ship's internal administration that are applicable to the detachment. He is required to conform to the administrative instructions promulgated by the Commandant of the Marine Corps relative to preparation and submission of payrolls and muster rolls, promotions, accounting for Marine Corps property, and similar details.

He is responsible to the department head for training conducted under his supervision and for the care, preservation, and operation of equipment, supplies, and spaces assigned to the detachment. He conducts required drills and may be detailed to superintend small arms practice and landing force training of the ship's company.

Marine officers may act as officers of the deck or junior officers of the deck, according to their qualifications.

Normally, the main functions of a Marine detachment aboard ship are to provide—

1. A unit organized, trained, and equipped for operations ashore, as part of the ship's landing force, as part of a landing force of Marines from ships of the fleet or a subdivision, or as an independent force for limited operations.

2. Additional guncrews.

3. Internal security for the ship.

The detachment forms a separate division at sea, as far as practicable, is employed intact in

the battle organization. In battle, the detachment mans gunnery stations; detachment officers ordinarily perform various gunnery control duties.

All Marines aboard volunteer, work, and train for the privilege of becoming seagoing Marines. They serve as orderlies for the ship's commanding officer and other high-ranking officers aboard. They act as security guards at sea and in port. When so ordered, they may be assigned to other duties including, but not limited to, communications, staff, guard, and aviation.

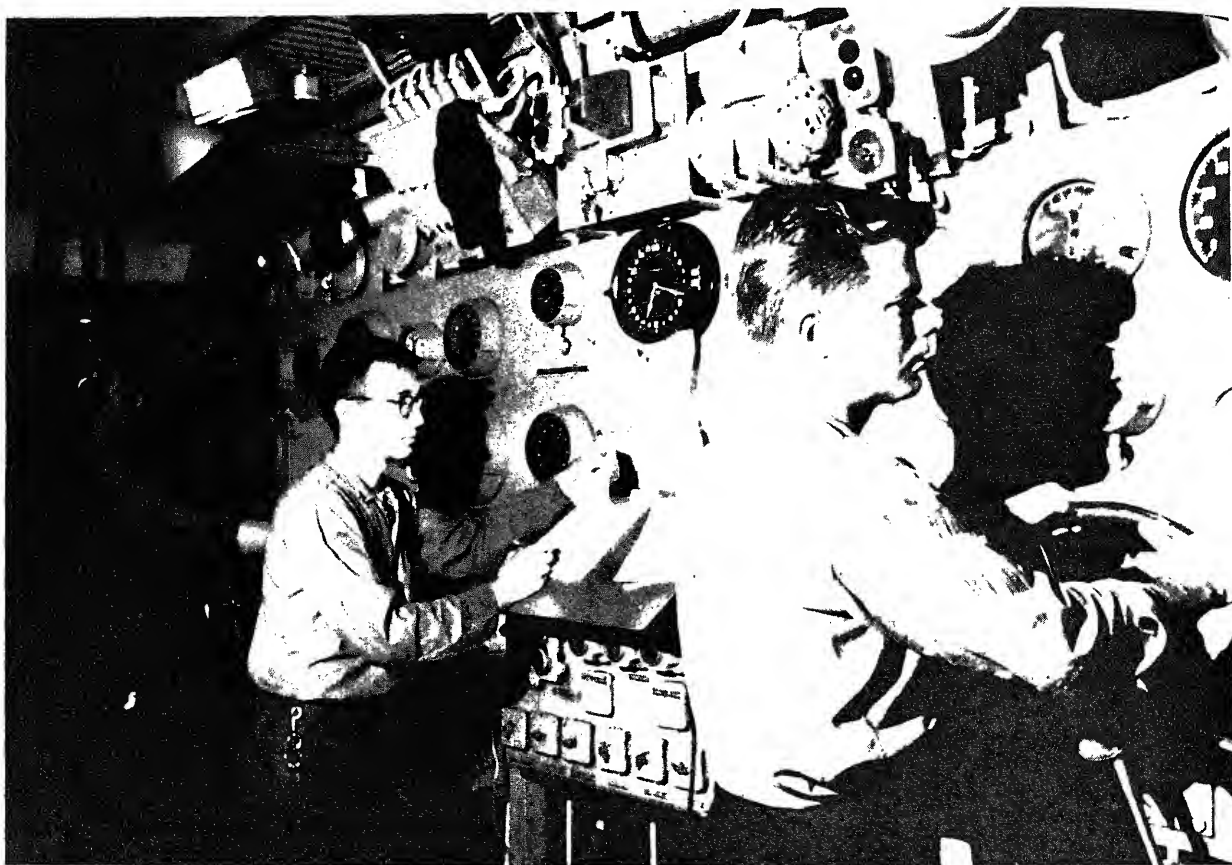
All Marines except orderlies turn out with the bluejackets to handle ammunition when it is brought aboard. They generally assist in provisioning the ship and square away their own compartment. They may be assigned to boarding parties and prize crews.

Engineer Officer

The functions of operation and maintenance of ship's machinery are assigned to the engineering department. Damage control and certain types of repair also are in the charge of various divisions that the department may comprise. Such divisions may be the auxiliary, repair, boiler, main engines, and electrical.

The head of the engineering department is designated the engineer officer. He is responsible, under the captain, for operation, care, and maintenance of all propulsion and auxiliary machinery; for control of damage; for operation and maintenance of electric power generators and distribution systems; and upon request from the head of a department, for accomplishment of repairs that are beyond the capacity of repair personnel or equipment of other departments.

Specifically, he is charged with the operation, care, and maintenance of all machinery, piping systems, and electrical devices not otherwise assigned; repairs to hull and machinery; furnishing of power, light, ventilation, heat, refrigeration, compressed air, and water; maintenance of underwater fittings; and the stowage, care, and use of fuels and lubricants not assigned to other departments.



134.151

Figure 13-7.—Engines may not be turned or speed altered unless directed or permitted by the conning officer. To increase speed, the throttleman (right) opens the throttle to admit more steam to the ahead turbines.

In connection with the ship's main propulsion and auxiliary machinery, the engineer officer is responsible for effective operation of main engines and boilers, particularly when unusual care is required, such as when getting underway or during critical speed changes. He ensures that boiler fires are not lighted or secured without permission from the captain (except in emergencies) and that main engines are not turned (figure 13-7) except in obedience to a signal from or by permission of the officer of the deck. He maintains the engineering log, engineer's bell book, and other engineering records.

As damage control officer, the engineer officer establishes and maintains an effective

damage control organization, with his responsibilities extending to the control of stability, list, and trim. He acts as technical assistant to the executive officer in carrying out nuclear, biological, and chemical defense procedures. He supervises placing the ship in the condition of watertight and airtight closure ordered by the captain, coordinating prescribed tests of compartments and spaces for tightness. The engineer officer is responsible for training ship's personnel in damage control, including associated instruction in nonmedical defensive measures against gas and similar weapons.

Assigned to the engineer officer may be a main propulsion assistant, a damage control

assistant, an electrical officer, a fire marshal, and special assistants for NBC defense.

Reactor Officer

In nuclear-powered ships having a reactor department, the department is headed by the reactor officer, whose basic function is the operation, care, and safety of the reactor plants and associated auxiliaries. He must maintain them in a maximum state of readiness at all times.

The reactor officer is a technical assistant to the commanding officer on matters involving reactor safety. He supervises disposal of radioactive wastes originated in the reactor plants. He is responsible for operation of main engine throttles and maintains the engineer's bell book. He exercises close coordination and cooperation with the engineer officer in the operation and maintenance of the propulsion plant. In this regard, the reactor officer and his assistants are responsible, as prescribed in their specific duties, for some duties normally prescribed for the engineer officer and his assistants on nuclear-powered ships not having a reactor department.

When assigned, the reactor mechanical assistant and reactor control assistant report to the reactor officer.

Air Officer

In ships that have an air department, the head of that department is the air officer. Under the commanding officer, he supervises and directs launching and landing operations and the servicing and handling of aircraft. He is responsible for crash salvage operations and aircraft firefighting as appropriate; operation, care, and maintenance of aircraft handling equipment such as elevators, catapults, and arresting gear; and the care, stowage, and issue of aviation fuels and lubricants.

Assistants to the air officer may include flight deck, catapult, arresting gear, hangar deck, aviation fuels, and aircraft handling officers.

Aircraft Intermediate Maintenance Officer

Aircraft maintenance functions are divided into three distinct levels; organizational, intermediate, and depot.

Organizational maintenance, performed by squadron or unit personnel on a day-to-day basis, includes routine inspection, servicing, handling, and "on-aircraft" corrective maintenance such as removal and installation of parts and components.

Intermediate maintenance is shop-type repair and test work (e.g., minor modifications, stipulated periodic inspections, assembly, and preservation) on aircraft components and equipment.

Depot maintenance, which includes overhaul, major repairs, and major modifications, normally is accomplished ashore.

Aboard carriers, the aircraft intermediate maintenance department (AIMD) is manned by a nucleus of permanently assigned personnel who normally are augmented by designated personnel temporarily assigned from embarked squadrons.

The aircraft intermediate maintenance officer supervises and directs the intermediate maintenance effort in support of embarked air wing/group aircraft, and the intermediate and organizational maintenance for aircraft assigned to the ship. When sufficient squadron maintenance personnel are embarked, the AIMD merely provides and maintains service and repair shop facilities for their use. When maintenance personnel are not embarked with the squadron, AIMD personnel also perform needed maintenance and repair functions.

Air Wing Commander

The embarked air wing commander (or aviation officer in nonaviation facility ships with a helicopter detachment embarked) has the status of department head relative to the embarked squadrons. He directs tactical training and indoctrination of the air wing, coordinates and supervises all activities of the several

squadrons and detachments in the execution of employment schedules, and ensures the material readiness of the wing as a whole.

The wing commander maintains a continuing safety program both in the air and on deck; instructs embarked personnel on ship's organization, regulations, and procedures; and coordinates with the operations officer in matters concerning employment, scheduling, training, and tactical air operations.

Squadron commanders are assistants to the air wing commander.

Supply Officer

The supply officer, who heads the supply department, is responsible for procuring, receiving, storing, issuing, shipping, selling, transferring, accounting for, and while in his custody, maintaining all stores and equipment of the command except those assigned to other departments.

Specific functions of the supply department include the receipt, delivery, and shipment of medical and dental supplies and equipment; inspection of material received under orders and contracts that call for inspection and delivery; operation of the general mess, including the preparation and service of food, operation of the ship's store, which furnishes articles and services for the ship's crew; operation of the small stores unit, which makes available, for sale, standard uniform items; and upkeep of storeroom spaces and issue rooms.

The supply officer's accounting duties include allotment, cost, appropriation, and property accounting. He maintains stock records, posted to date, for all stores for which he is responsible. These records are maintained to establish accountability for stores and to provide stock control information that will facilitate replenishment and enable proper and adequate stocks of material to be maintained.

Assistants to the supply officer may include an assistant for disbursing, a stores officer, a ship's store officer, and a food service officer. A mess deck master-at-arms, when assigned, assists the supply officer in such matters as the maintenance of good order and discipline connected with the general mess, cleanliness of

messing compartments, and care and upkeep of messing equipment.

When an assistant for disbursing is assigned, the supply officer is relieved by that officer from responsibility for procurement, custody, transfer, issue of, and accounting for funds. Similarly, if the commanding officer approves the assignment of an assistant for subsistence or the ship's store, the supply officer is relieved by that officer from personal financial accountability for the procurement, receipt, stowage, custody, issue, transfer, maintenance of proper records, accounting for, and submission of returns for subsistence or ship's store material. In each case, however, the supply officer exercises general supervision over and inspects the accounts of the assistants.

Medical Officer

The head of the medical department is the medical officer. Normally he is the senior officer of the medical corps attached to and serving on board. He is directly responsible for maintaining the health of personnel of the command. He acts in an advisory capacity to the commanding officer in matters pertaining to sanitation and hygiene.

In addition to furnishing medical care and treatment to ship's personnel, the medical officer must, when directed by the captain, provide those services to other members of the Armed Forces who may require them.

When circumstances require, he cooperates with local health authorities in matters affecting the health of the community. He assists those authorities in quarantine inspections and also advises the commanding officer regarding the medical aspects of pertinent quarantine regulations.

Although the supply officer receives, delivers, and ships medical and dental supplies, the medical officer is charged with procuring, inspecting, stowing, issuing, and transferring medical supplies. (Dental supplies are similarly handled by the dental officer.)

The medical officer conducts routine inspections of the ship's messing, food service, living, berthing, and working spaces to ascertain the sanitary conditions of those spaces, and

makes a weekly physical examination of food service personnel, barbers, and messmen. He initiates and supervises the training of personnel in personal hygiene, first aid and self-aid, artificial respiration, and NBC warfare medical defense. He identifies and cares for the dead.

When embarked, the air wing/group flight surgeon reports to the ship's medical officer on matters pertaining to the health, medical treatment, and fitness of squadron personnel for the control of aircraft.

In ships having no medical officer attached, enlisted medical personnel are responsible directly to the commanding officer for medical matters. For military and administrative functions, they are assigned to the X division (if established), the operations department, or the supply department.

In small ships the medical and dental departments may be combined, or they may be nonexistent.

Dental Officer

In ships that have a dental department, the senior officer of the dental corps attached to the ship is the department head. He is responsible for the dental care and oral health of ship's personnel, ensuring, by periodic dental examinations, the prevention and control of dental diseases and supervision of dental hygiene within the command. The dental officer and his subordinates may, in emergency situations and in other circumstances prescribed in the organization of the command for battle, perform such duties for the care of the sick and wounded as the commanding officer may direct.

Repair Officer

Repair ships or tenders whose primary function is to repair other ships have a repair department headed by a repair officer.

Planning and scheduling are important details, and the repair officer ensures timely completion of any work assigned to his department. Inspection of completed work is

performed to make sure that work is done satisfactorily and in conformance to prescribed methods and standards. He establishes and maintains a job order system and keeps records of materials used and charges to be made. He prepares estimates of funds required for repairs accomplished.

Like other department heads he is, of course, responsible for the training of his personnel, for the coordination of his department with others in the ship, for the upkeep and cleanliness of assigned spaces, for the maintenance of equipment needed in his work, and for any records and reports required.

In submarine tenders an additional department is established—the ordnance repair department, headed by the ordnance repair officer. His duties parallel those of repair officers but are concerned with submarine ordnance.

DIVISION OFFICERS

The departments of a ship are composed of divisions, which in turn are organized into watches and/or sections. The division is the basic unit of personnel aboard ship. The number of divisions in a department varies between ships, and division complements may be very small or include perhaps 200 members. As far as practicable, divisions are assigned battle stations that permit their employment as units under their own officers and petty officers.

A division officer is one assigned by the commanding officer to command a division of the ship's organization. Division officers are responsible to and in general act as assistants to department heads, and they have a vital role in a ship's administrative organization.

The assignment as division officer of a group of personnel responsible for certain spaces, equipment, and functions aboard ship is usually a young officer's first really important assignment. Here is his first significant opportunity to develop and practice the desirable leadership traits discussed in chapter 8; i.e., to manage men and resources effectively, and to organize his group carefully and

efficiently, following the accepted principle of delegating authority to the lowest supervisory level.

The division officer is, above all, a guide, leader, counselor, and supervisor. He exemplifies a very personal type of leadership, and how he exerts that leadership can truly make or break his division. Particularly in a small ship, he is the enlisted person's major link in the chain of command. Whatever other duties he may have, the division officer must be approachable—he must find time to exercise daily, almost constant, direct supervision of and personal contact with his subordinates.

The manner in which a division officer executes the policies of his superiors sets the pace for his entire division. He is in such a position that almost every duty he performs produces immediate results. Being at the working level, he personally is responsible for seeing that a job gets done; he cannot issue directives or vague instructions and leave the details of accomplishment to others. How he gets the job done, how he issues orders, how he reacts to orders from above, his enthusiasm or lack of it—all these contribute to the morale and spirit of the division. If he wants an alert division that is eager to follow his lead, enthusiastic in responding to daily work and drill requirements, and ready to do a little more than is required, he must set the example. Even the best of junior division officers and petty officers will be handicapped if the division officer does not exert close coordination and motivation.

The first quality enlisted persons look for in an officer is competence. Next is his continuous interest in their welfare; superficial concern, however, will have a negative effect.

Part of his taking a personal interest is being sure the personnel understand what is behind his orders. It is not enough that the division officer's actions seem sensible and necessary to him. It is how his subordinates look at his orders and participate in them as members of the team that increases or decreases their sense of belonging. They must be made to feel they are an important and solid part of the organization.

The duties of a division officer are many and varied. He is required to execute all methods prescribed by and all orders received from his

superiors. He must be cognizant of the needs and capabilities of his subordinates and, within his authority, may take action necessary for the efficiency of his division and the welfare and morale of its members.

The division officer has the responsibility of training his subordinates in their own duties and in the duties to which they may succeed. He should encourage them to strive for advancement and educational self-improvement. He has disciplinary duties also and is charged with suppressing any improper language or unseemly noise or disturbance.

Personal supervision and frequent inspection of spaces, equipment, and supplies assigned his division are required of him. He reports to the department head any repairs or corrective measures which need that officer's attention.

It is his responsibility to maintain corrected copies of all bills and orders for his division and to have pertinent ones conspicuously posted.

Personal leadership is important to the division officer. He has frequent direct contact with the enlisted personnel and must see to it that they perform with diligence all duties assigned. The division officer's leadership ability is manifest especially through his accomplishment of training responsibilities. His effectiveness is measured by the extent to which he fulfills his main duty: preparation of his subordinates for battle.

Training

One of the most important jobs of a division officer is supervising the training program of his division. The Navy today suffers from a rapid turnover of personnel; therefore, if it is to have properly trained personnel, training must be a continuing task.

While the majority of enlisted persons are interested in being promoted and have a natural curiosity that prompts them to learn about the things with which they come into contact, there are a few who need motivation and varying degrees of supervision.

If the Navy is to accomplish its mission as efficiently as possible, enlisted persons as well as officers must eagerly increase their professional knowledge and willingly assume more important

positions with the accompanying increased responsibilities.

Standard Organization and Regulations of the U.S. Navy (OPNAVINST 3120.32) discusses various aspects of shipboard training programs, including organization, administration, scheduling, application, and evaluation. It also lists several other publications of considerable training value.

The objective of a training program is to increase the ability of personnel to administer and operate the ship effectively under all foreseeable circumstances. On a division level, training may be divided into two phases: (1) the basic training, team training, and drills necessary to develop the teamwork of the crew, and (2) assistance to enlisted personnel in their preparations for advancement. The first phase usually is well developed in the ship's training program and will, naturally, take more of the training time. However, the latter phase must not be ignored and left to the individual whim.

A wise division officer will determine individual training needs of his personnel and, as far as possible, cover those needs in his program. This may sound like a task of monumental proportions, but most of the needs will fall into patterns or groups which can be dealt with adequately by group instruction. A group of personnel studying for the same rate will profit by a carefully chosen series of lectures on required subjects and demonstrations on the uses of various pieces of equipment. Each petty officer in the division should be required to conduct a few of the lectures and demonstrations, but a division officer should make certain that his POs are capable and understand their subjects.

To make certain that subjects are covered thoroughly, needless repetition is eliminated, and time is used to best advantage, a division officer should discuss the instructors' outlines with them and, if necessary, assist in the preparation of the outlines. He should attend lectures and demonstrations of each of his petty officers. He is bound to learn a few things, and he may be able to point out ways in which the instructors can improve their presentations. It may be necessary to give many POs instructor training, but the expenditure of time for this training pays huge dividends in increased results.

A good training program with good instructors and supervised by an enthusiastic officer eventually will build an outstanding division of which all concerned will be justly proud.

Counseling

It is not enough for the division officer to see that his personnel are trained—they must be retained if they are to be of use to the Navy. In fact, the Navy is extremely concerned about its inability to retain sufficient numbers of enlisted personnel to sustain vitality and optimum effectiveness of the naval establishment. Putting it another way, the low reenlistment rate puts the afloat commanding officer and his subordinate officers in the position of losing key personnel on a day-to-day basis, with the consequent adverse effect on the ship's operational readiness. Personnel can be replaced, of course, but recruits cannot take the place of trained men.

With this in mind, BUPERS has in effect a career counseling program, its goal being to retain in the Navy as many trained and qualified enlisted personnel as possible. In this program the career counselor is one of the main sources of information to the personnel of the command, and it is especially his responsibility to assure that current programs and opportunities available to personnel of the fleet are expounded. Ships having a manning level of 250 or more rate a command career counselor. In addition senior petty officers, usually E-5 or above, are assigned as departmental/divisional counselors to assist the command career counselor.

The assigned counselors, as one of their most important functions, interview personnel at periodic, stipulated intervals as a means of establishing motivation for reenlistment. For example, a first-term person reporting aboard is interviewed both to familiarize him with his new environment and to guide him in the attainment of his career goals. This initial interview is followed by two or more (depending on his period of enlistment) "progress" interviews at roughly 1-year intervals to review the member's progress; to discuss any problems he may have;

to apprise him of opportunities of which he may be unaware; and if married, to acquaint or reacquaint him with family benefits. The counselor interviews each person recommended for reenlistment 6 months prior to expiration of the person's obligated service. The counselor discusses the opportunities and advantages of the Navy compared with those of civilian life.

Although a trained counselor may be assigned to the division, in most instances it is neither intended nor possible for him to assume that role on a full-time basis. As stated, the division career counselor accomplishes his mission by periodic, planned interviews. But personnel do not plan their problems or questions in such a way that the answers can wait for an interview that may not take place for months. In the day-to-day business of personnel matters and management, the division officer, junior division officer, and leading petty officer also must assume their inherent responsibilities as advocates of career service in the Navy.

Because the division officer often is the one from whom a member of the division seeks advice, it is necessary that that officer be familiar with various programs that may benefit or enhance the servicemember's career.

Because of the number of programs and benefits involved, all being subject to frequent changes regarding eligibility, scope, and procedures, this text does not attempt to describe, or even summarize, all of those available. The *Career Counseling Manual* (NAVPERS 15878) and *Enlisted Transfer Manual* (NAVPERS 15909) contain much useful information in the areas of education (STAR, SCORE, NESEP), various training programs, sea/shore rotation procedures, and others. Most of these topics also are the subject of instructions and notices issued through the Navy Directives System.

The division officer must acquire all the knowledge he can that pertains to advancement in rate of the members of his division. This requires familiarity with the *Manual of Advancement in Rate* (BUPERSINST 1430.16), *Manual of Navy Enlisted Manpower and Personnel Classifications and Occupational Standards* (NAVPERS 18068-D), and *Bibliography for Advancement Study* (NAVPERS 10052-W).

Although there may be a ship's training officer responsible for the details of the overall training program, the division officer must keep informed since he decides whether a servicemember is qualified to be recommended for advancement.

The division officer might do well to compile a list of other topics on which he often is consulted. The list would include such items as medical care for dependents and family planning services; assistance provided by the Navy Relief Society; tuition aid; officer programs; benefits such as retirement, Servicemen's Group Life Insurance, and mortgage insurance; proficiency pay; and perhaps social security and dependent's indemnity compensation (DICOMP) in event of the servicemember's death. Almost all of these topics are covered by various instructions issued through the Navy Directives System. *Personnelman 3 & 2* (NAVEDTRA 10254-C) also covers these as well as other topics mentioned in the preceding paragraphs.

Once he has a list of topics compiled, the division officer should, if time permits, read the applicable instructions and jot down for future reference all pertinent information on each subject (the career counseling manual is an excellent guide in this respect). Thus, he will have the necessary data readily available when called on to act as counselor.

Being prepared will enable the division officer to counsel his personnel without referring them to other offices. Such individual assistance and concern for the Navy's goals of human awareness generate respect for and confidence in the division officer and the Navy. Effective counseling, then, can create attitudes which will contribute to increased retention of trained, qualified enlisted personnel.

FUNCTIONAL ORGANIZATION

A standard organization and regulations manual, a battle organization manual, and a watch, quarter, and station bill are required aboard each ship to ensure that the ship's personnel function as a well-coordinated team. These guides detail for that particular ship the assignment of officers and men in the

performance of their duties. For units under the Ship's Manning Document (SMD) or the Squadron Manning Document (SQMD), the particular publication also serves as a battle organization manual and battle bill.

STANDARD ORGANIZATION AND REGULATIONS MANUAL

The standard organization and regulations manual which, although a general directive, has the force and effect of regulations, outlines in a specific manner the ship's organization. It contains the administrative, operational, and emergency bills necessary to provide for almost any contingency. Routine work and other details of duty to be performed by or assigned to the several divisions also are set forth.

BATTLE ORGANIZATION MANUAL

In order for commanding officers to fight their ships to the best of their abilities, it is essential that ships have a special organization and a special system of communications for battle conditions. These are set forth in the battle organization manual. This document contains four chapters describing battle organization, conditions of readiness, battle bill, and interior communications systems.

The chapter on battle organization discusses chain of command; control of ship, armament, communications, aircraft, casualties, etc.; and doctrines necessary to fight the ship.

The chapter on conditions of readiness covers considerations affecting the selection of the proper condition of readiness and measures that individual ships take to comply with the specified condition.

There are several conditions of readiness for battle or for simulated war operations. The condition in operation depends on the anticipated danger.

Condition Watch I: the maximum state of readiness for battle, with the entire crew at battle stations prepared for imminent action.

Condition Watch IE: a condition to provide temporary relaxation from the first degree of

readiness, to enable personnel to rest on stations, and to permit designated personnel to draw and distribute action meals at their action stations.

Condition Watch II: a special watch applicable to gunfire support ships for situations such as extended periods of shore bombardment.

Condition Watch III: normal wartime cruising condition when surprise attack is possible. Part of the armament is manned and ready for immediate action.

Condition Watch IV: that condition to provide effective ship and aircraft control during peacetime cruising.

Condition Watch V: ship in port, no armament manned.

The battle bill is the ship's organized plan for action against the enemy. It lists the stations which must be manned under battle conditions and for various condition watches and indicates the personnel requirements for manning those stations. Assignments to those stations are made according to billet numbers, which means that rates are assigned, rather than individuals, to the stations. Division officers of indicated divisions, taking into account personal qualifications, then assign individuals to the billets and enter the names on the divisions' watch, quarter, and station bills.

Chapter four of the battle organization manual provides descriptive information on the various interior communication systems which include alarms and warning devices, battle announcing systems, sound-powered telephone circuits, ship service telephones, and voice tubes.

WATCHES AND WATCH OFFICERS

The assignment of officers and enlisted personnel to watches and sections within a division is carried out in a manner that ensures effective manning of the battle stations required to meet the several prescribed conditions of readiness for action. Consideration is given to the fact that the normal watches may be kept and that the force on board at any time is sufficient and is organized to care for the safety, operation, and maintenance of the ship.

With the exception of the commanding officer and the executive officer, every officer and every enlisted person aboard is placed in a watch section. The personnel filling the offices and stations of the watch are temporarily removed from their regular stations and duties in the ship's organization, and devote their entire attention to their watch duties.

A watch officer is placed in charge of a watch or a portion of a watch. The commanding officer assigns to such duty any commissioned or warrant officer whom he considers qualified; he may, when conditions require, assign a petty officer to such duty. The station of an officer in charge of the watch is where he can best perform the duties assigned him, and effectively supervise and control the performance of those on watch under him. He must remain at his station until relieved.

Each watch section is approximately equal in number and in experience and special qualifications of its members. In the past there were normally three sections. CNO directives have allowed a more liberal policy in determining the number of watch sections required.

At sea, watchkeeping rotates among the watches. Each watchkeeping detail normally lasts 4 hours. Those not on watch or at battle stations engage in ship's work, drills, recreation, and rest. Under battle conditions the ship is at general quarters and all officers and enlisted personnel have assigned battle stations.

In port, after working hours (usually from 1600 to 0800), the watches not having the day's duty may have permission to go on liberty. The sections in the duty watch rotate the watchkeeping details over the 24-hour period. The general practice is to have at least a sixth of the personnel on board at all times although this practice varies with conditions. A ship in drydock, for example, may not need a sixth of the personnel on board, whereas in port in a battle area, most of the personnel would be required to stay on board.

Officer of the Deck

The officer of the deck (OOD) is the officer on watch in charge of the ship. With the

exception of the executive officer (and any officer specifically authorized by the commanding officer, such as the command duty officer or navigator), every person on board who is subject to the orders of the commanding officer is subordinate to the officer of the deck.

The executive officer may direct the OOD in matters pertaining to general duties and safety of the ship. When the captain considers it advisable, he also may delegate to another officer (command duty officer), for a specified watch, the executive officer's duties in connection with the officer of the deck. In addition, the commanding officer may authorize the navigator to relieve the officer of the deck if in his opinion such action is necessary to ensure the safety of the ship.

The OOD must have complete knowledge of and follow absolutely the policies of the captain and the executive officer. In no position more than that of officer of the deck is eternal vigilance the price of safety. The comfort and contentment of others must receive his consideration, and he must bear in mind that every request handled is a potential troublemaker if not properly decided. By his bearing, alertness, scrupulous attention to details of duty, and capable manner of discharging authority, the officer of the deck is a vital factor in furthering the efficiency of the ship. He exerts an important influence upon the personnel.

Underway, the OOD takes a position on the bridge where he may advantageously determine the proper action for the safe handling of the ship. In port, his station is on the quarterdeck.

An officer of the deck is the commanding officer's representative. It takes months of practice and experience to become proficient in the performance of the duties of this position. He should have a sound basis of technical knowledge combined with forehandedness, vigilance, commonsense, and experience. He must also have a thorough knowledge of the rules of the road. The small volume, *Watch Officer's Guide*, is an invaluable help to the young officer of the deck.

He may be assisted by a junior officer of the deck (JOOD) who in this way acquires the experience necessary for standing regular watches as OOD.

NAVIGATIONAL RESPONSIBILITIES.—

The OOD is charged with responsibility for the ship's safety. When at sea and especially when approaching land or shoal waters, he is required to keep himself informed of the position of the ship and of all particulars that may be of use in keeping the ship out of danger. He must be able to anticipate danger as well as to take effective measures for avoiding it. During low visibility, or whenever circumstances warrant, he is authorized to assign additional lookouts.

He must see to it that the lights required by law for prevention of collisions are correct as to number, color, and location, and that they are kept burning from sunset to sunrise. Half-hourly inspections must be made in this regard.

When his ship is steaming in formation, its assigned station must be maintained. It must be skillfully steered and kept on its course. The navigator advises the OOD of a safe course to be followed and he regards such advice as sufficient authority to change the course. Otherwise, he is not authorized to change either course or speed unless ordered by the commanding officer or unless such action is necessary to comply with maneuvering signals of the officer in tactical command, or to prevent collision or imminent danger. In any instance he must inform the commanding officer at once of any change made. (Minor changes in course and speed to maintain station, however, need not be referred to the captain.) Further, he is not authorized to make official signals unless the captain orders them or unless they are necessary to warn others in company of immediate danger.

BOATS.—The officer of the deck ensures that boats and crews at all times present a creditable appearance; that boats are handled smartly, properly manned and equipped, and are not loaded beyond their capacity. Crews must observe rules for preventing collisions and regulations pertaining to honors and ceremonies. They must understand how to use the boats and observe pertinent safety precautions.

Other boats or aircraft sighted must be watched so that aid may be sent to them if necessary. The OOD must be informed of any boats or other craft that come alongside or leave the ship. When materials or services arrive that

require the knowledge or action of certain officers, the OOD ensures that these officers are promptly notified.

INSPECTIONS.—The officer of the deck has frequent inspections made to ensure the security of the ship. Inspections extend to matters such as watertight integrity and condition of the armament and ground tackle or mooring lines in use. The good order and discipline of the crew must be noted by him. Inspections below decks may be made by the junior officer of the deck.

When in port, coxswains of the lifeboats are required to inspect and report to him at sunset the condition of their boats as to readiness for service. At sea, a similar inspection and report is made to him at the beginning of each watch.

When at anchor the officer of the deck must take proper precautions to detect and prevent dragging.

REPORTS.—On being relieved, the OOD signs the deck log after making certain that the entries for his watch are complete, accurate, and clear.

In matters that bear on the safety of the ship, its personnel, or ships in company, he reports promptly to the captain. Vessels, aircraft, or wrecks detected; land, shoals, rocks, lighthouses, beacons, or buoys sighted; marked changes in barometer, wind, state of the sea; or indications or warning of storms—in short, all occurrences worthy of the notice of the commanding officer—are reported to him by the officer of the deck.

Personnel aboard are required to report to the OOD any occurrence or condition that may in any way affect the safety of the ship, or that should be included in the record for his watch.

MISCELLANEOUS DUTIES.—At various times the officer of the deck may function as an alert policeman or as a gracious host. The personnel performing their assigned duties about the ship are constantly under his observation, for he is responsible for prompt and precise execution of the ship's established routine and of any special orders. He must see that the personnel observe all pertinent safety precautions, especially in heavy weather and

when they are working aloft or over the side. Their safety when they are handling explosives or other dangerous materials is his responsibility. He must ensure that, if the cry, "Man overboard!" is heard, the means for rescue are ready for instant use.

He is required to take measures for preventing personnel from bringing aboard unauthorized articles. He sees that no articles are taken from the ship without requisite permission. Personnel over whom he has authority report to him or to his representative on leaving or returning to the ship. On leaving, they must report authority to do so.

All persons coming aboard or alongside must be treated courteously. Unless prevented by urgent duty, the officer of the deck is expected to be at the gangway to receive all officers or distinguished visitors. When they leave, he accompanies them to the side. When salutes, honors, and ceremonies are in order, the officer of the deck sees that they are properly performed.

Engineering Officer of the Watch

The engineering officer of the watch is the officer on watch in charge of the ship's main propulsion plant and of associated auxiliaries. He ensures that the engineering log, the engineer's bell book, and the prescribed operating records are properly kept, and that all orders received from the officer of the deck are promptly and properly executed.

He may be directed in the duties of the watch by the engineer officer or the main propulsion assistant, either of whom may assume charge of the watch if they consider such action necessary. The engineering officer of the watch reports to the officer of the deck and to the engineer officer any defects of machinery, boiler, or auxiliaries that may affect the proper operation of the ship. He makes frequent inspections of engines and boilers and sees that all relevant safety precautions are observed. When relieved, he signs the engineering log and the engineer's bell book for his watch.

WATCH, QUARTER, AND STATION BILL

Each division officer is responsible for maintaining a watch, quarter, and station bill for the personnel in his division. This is based on the ship's battle bill and the organization and regulations manual; it shows each person's name, rate, billet number, and bunk number. In addition, it shows each person's battle station; his watches during Conditions 1, 2, and 3; his station or duty in the event of an emergency such as fire or man overboard; his at-sea and in-port watch station; and his cleaning station.

LOGS

A ship's deck log and an engineering log are maintained by each ship in commission. An engineer's bell book is required as an adjunct to those logs.

No erasures may be made in these records. Corrections, additions, or changes are made only by the person required to sign the record for the watch. Changes requested by the commanding officer are made by the person keeping the log only if he considers them correct; otherwise the commanding officer enters over his signature such remarks as he deems appropriate.

Ship's Deck Log

The ship's deck log is a complete daily record, by watches, in which is described every circumstance and occurrence of importance or interest that concerns the crew and the operation and safety of the ship, or that may be of historical value. The navigator has overall responsibility for preparation and care of the ship's deck log. The type of material to be noted includes data such as the ship's operating orders, its courses and speeds, position, state of the sea and weather, damage or accident to the ship or its cargo, deaths or injuries to personnel, records of meeting or adjourning of courts-martial and other formal boards, and changes in the status of ship's personnel or passengers. Reports of all routine inspections must be entered in the log which thus serves as a record of whether or not

such inspections are made. The manner and form for preparing the log are prescribed in OPNAVINST 3100.7.

The ship's deck log, as a chronological record of the events occurring during each watch, provides necessary information to the commanding officer and ultimately serves as a historical document. Accuracy in describing events recorded in a ship's deck log is essential because such entries often constitute important legal evidence in judicial and administrative factfinding proceedings arising from incidents involving the ship or its personnel.

Engineering Log

The engineering log is a complete daily record, by watches, of important events and data pertaining to the engineering department and the operation of the ship's propulsion plant. The Commander, Naval Sea Systems Command, prescribes the manner and the form to be employed in preparing the log.

The engineer's bell book is a chronological record of orders pertaining to the speed of the engines. It shows, for each shaft to which it pertains, the time each order regarding a change in propeller speed is received, the meaning of such order, and the revolutions per minute resulting from action taken in obedience to such order. Entries in the bell book are made at the time of receipt of each order.

LIVING QUARTERS AND MESSES

The space provided for officers' living quarters usually is located near the wardroom.

This part of the ship is called "officers' country." Senior officers, if accommodations permit, are assigned individual staterooms. Junior officers share staterooms or are assigned to a bunkroom. Warrant officers are usually furnished accommodations similar to those of junior officers, and the chief petty officers are bunked together in separate compartments. Other enlisted personnel are bunked in large compartments containing tiered bunks and metal lockers.

Messes on flagships normally are six in number. These messes are in general as follows:

Flag mess: for the admiral.

Captain's mess: for the captain.

Wardroom mess: for other officers of the grade of ensign and above.

Warrant officers' mess: for warrant and chief warrant officers. (May be combined with the wardroom mess.)

Chief petty officers' mess: for all chief petty officers.

General mess: for all enlisted personnel except chief petty officers. On large ships there usually is a messing compartment set aside for the use of first class petty officers, but the food is supplied by the general mess. (Enlisted personnel are furnished their food by the Government. Officers must pay for their food since they are paid a subsistence allowance to cover the cost of meals.)

On smaller vessels, messes are combined. For example, on a destroyer there would be a wardroom mess, a chief petty officers' mess, and a general mess.

CHAPTER 14

SHIP CONSTRUCTION

Major factors to be considered in the construction of any naval combatant ship are mission, armament, protection, seaworthiness, strength, stability, maneuverability, and cruising range.

The mission of a combatant ship is a prime determinant in the construction planning for that ship. As an example, for an ASW destroyer the sonar gear, associated detection gear, weapons, and required personnel are the basic units about which a hull is constructed. The need for ships of different sizes and shapes within a type, that is, the variance between two such ships as a guided-missile destroyer and an ASW destroyer, is an indication of the required mission.

Armament is the gage by which the offensive power of a ship is measured. Normally we think of armament as meaning guns, torpedoes, missiles, etc. Depending on the ship's mission, however, the term also includes aircraft used for offensive purposes and landing craft (such as LCVPs and LCMs) suitable for amphibious operations.

Protection comprises those features that are provided to thwart or minimize effects of enemy attack. Included in this category are such protective installations as horizontal and vertical ballistic plating (armor), and internal subdivision by longitudinal (in large ships) and transverse bulkheads for limiting the spread of flooding caused by damage. Side protective systems for protection against weapons such as torpedoes also are found in large ships.

Seaworthiness is the term used to describe a ship's ability to operate in all kinds of wind, weather, and seas. Again, the ability of a ship to

accomplish her assigned mission must be considered in the proper evaluation of seaworthiness. Stability, size, and freeboard are controlling factors.

Stability concerns the ability of the ship to return to an upright position when heeled over by an external force. This is a partial measure of the ship's ability to absorb punishment involving underwater damage and flooding. In addition, stability has an important influence on the period of roll which, to some extent, determines a ship's utility as a weapons or aircraft platform.

Maneuverability is the characteristic which permits rapid changes of course and speed and includes the ability to turn in a small radius. The need for maneuverability varies considerably for the various types of ships, from the highly maneuverable CVs and DDs to the slower moving auxiliary and amphibious-type ships.

Speed is determined by the displacement of the ship, its underwater shape, and the power and efficiency of the propulsion plant.

Cruising range, also called endurance, is the unsupported distance capability of a ship measured in nautical miles at various speeds. It is determined by fuel capacity, freshwater capacity, evaporator capacity, efficiency of the propulsion plant with respect to fuel consumption, and provision capacity (dependent on storage space and refrigeration).

Obviously these qualities are not independent of each other. For example, a change in speed requirements affects considerably the cruising range. Heavy ballastic plating reduces the proportion of weight that can be used for machinery, and tends to reduce maximum speed.

The designer of a ship tries to incorporate as many favorable features as possible, in keeping with the general use to which the ship will be put. All ships represent a compromise in which some factors must dominate others. Destroyers, for example, sacrifice protection for speed. A very important consideration in all types of ships is the habitability features that must be incorporated for the comfort of personnel manning the ships.

DESIGNING AND PLANNING STAGES

The Naval Sea Systems Command (NAVSEASYS COM) is responsible for design, procurement, and construction of ships of the Navy. New designs, as requested by CNO and approved by SECNAV, are developed by NAVSEASYS COM in consultation with other appropriate offices. Consultations encompass all matters affecting the required military and functional characteristics of the proposed vessels and current engineering improvements.

The design of a ship is accomplished in four distinct stages with an increase in the extent of drawings in each successive stage. These stages are inception, conceptual design, contract design, and working drawings.

INCEPTION

The Office of the Chief of Naval Operations (OPNAV), taking into consideration military requirements and the budget, determines the number and types of ships necessary to maintain an adequate naval force and proposes to the Secretary of the Navy an annual shipbuilding program. The program usually will entail both new construction and modernization of existing hulls currently in service or in reserve. The request for a new design usually originates in the Ship Characteristics Board of OPNAV.

Once a new design has been initiated, exploratory studies are made of available data, and feasible military characteristics are determined. Assisting in this work, NAVSEASYS COM prepares many design

feasibility studies. Finally a set of tentative characteristics for the ship is prepared and submitted to the Chief of Naval Operations.

CONCEPTUAL DESIGN

The Concept Design Division of the Naval Ship Engineering Center (NAVSEC) prepares a set of drawings and data sheets showing principal features of the basic design based on the approved ship characteristics. It is during this stage that reasonably firm dimensions are selected that define the size and shape of the hull, and the Naval Ship Research and Development Center, by means of its model basin in Carderock, Md., tests several models to determine such factors as the propeller design, the actual shaft horsepower required, and the hull with the best maneuvering characteristics.

CONTRACT DESIGN

Because the design information compiled thus far is not adequate to form the basis of a bid from a shipbuilder, every element of the completed preliminary design is checked, refined, and redrawn in greater detail by the Hull Design Division of NAVSEC. The work results in the contract drawings and ship specifications that become an integral part of the contract with the shipbuilder.

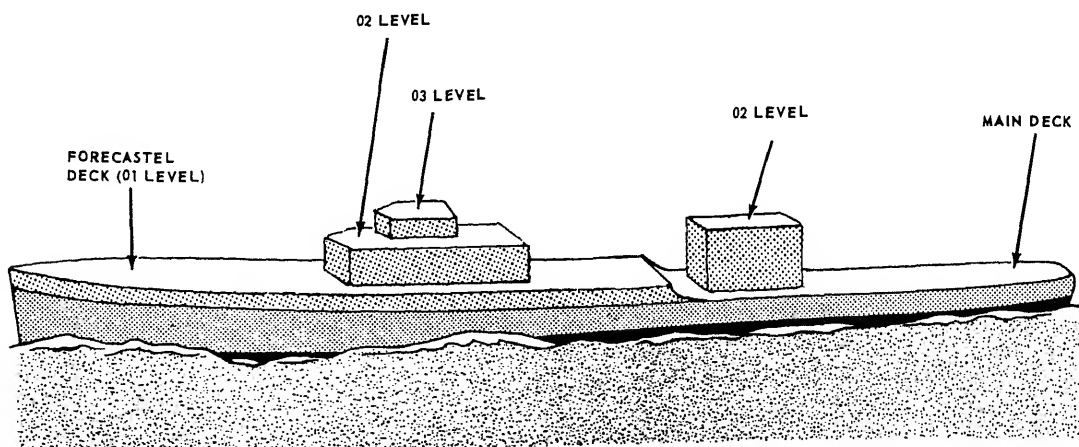
WORKING DRAWINGS

When a shipbuilder has signed a contract, he, or a design agent he hires, prepares the working drawings from which the ship will be built. These drawings reflect the guidance he has received in the contract drawings and specifications.

BASIC SHIP STRUCTURE

PLATING

A ship is structurally a box girder. Shell plating forms the sides and bottom of the box



3.95

Figure 14-1.—Any deck or portion of a deck that is exposed to the elements is referred to as a weather deck.

girder and the weather deck (figure 14-1) forms the top. The point where the weather deck (main and forecastle decks) and the side plating meet is called the deck-edge or gunwale. The location where the bottom plating and the side plating meet is called the bilge. Usually the bottom is rounded into the side of the ship to some degree; this rounding is called the turn of the bilge.

Most merchant ships, aircraft carriers, and auxiliary ships have a box-like midship section with vertical sides and a flat bottom, as in figure 14-2. High-speed ships such as destroyers and cruisers, however, have rising bottoms and broad, rounded bilges, although this shape is not entirely responsible for their high speed.

Individual shell plates are generally rectangular in shape; the short sides are referred to as the ends and the long sides are called edges. End joints are known as butts and edge joints as seams. Plates are joined together at the butts to form long strips of plating running lengthwise; these fore-and-aft rows of plating are called strakes. The uppermost side strake, at the gunwale, is the sheer strake; this is an important structural member of the ship and usually is thicker than most strakes because of high stresses at these corners when the ship is bending over wave crests. This also applies to the outer weather-deck strake, known as the stringer strake. The shell plating, together with the

weather deck, forms the watertight envelope of the ship and is a major contributor to the strength of the hull structure—a capacity enhanced by the internal structural members of the hull.

KEEL

An important structural member of a ship is the keel, which runs the length of the ship's bottom from stem to stern post. It acts as a backbone, performing a function similar to that of the human spine. The keel of a metal ship does not project below the bottom as does the fin keel of a sailboat, but lies entirely within the ship. It is built up of plates and angles into an I-beam shape. The lower flange of the I-beam structure is the flat plate keel that forms the center strake of the bottom plating. The web of the I-beam is the center vertical keel. The height of the center vertical keel varies from about 2 feet in small ships to nearly 7 feet in large ships. The upper flange of the I-beam is called the rider plate. If the vessel is fitted with an inner bottom, the rider plate forms the center strake of the inner bottom plating. At the ends of the vessel the keel is joined to the stem and stern posts which complete the backbone. The keel accepts the major portion of load during drydocking of the ship.

The shell plating is assisted in resisting the pressure of water, wind, and wave by two sets of stiffening members called frames. Transverse frames extend from the keel outward around the turn of the bilge and up the sides like the ribs of a human skeleton. They are closely spaced along the length of the ship and define the form of the ship. Longitudinal frames, stringers, or more often simply longitudinals, run parallel to the keel along the bottom, bilge, and side plating, and tie the transverse frames and bulkheads together along the length of the ship.

Openings in one set must be cut to make way for the other. Those which are not cut are known as continuous frames. Where smaller frames butt into larger frames without being continuous, they are called intercostal frames. This gives rise to two important ways of building a ship. One method is to make the transverse rib-like frames continuous and make the longitudinals intercostal between them, or provide sufficient plating thickness and eliminate longitudinal members altogether. In this method the transverse frames are spaced about every 2 feet along the length of the ship. Most merchant

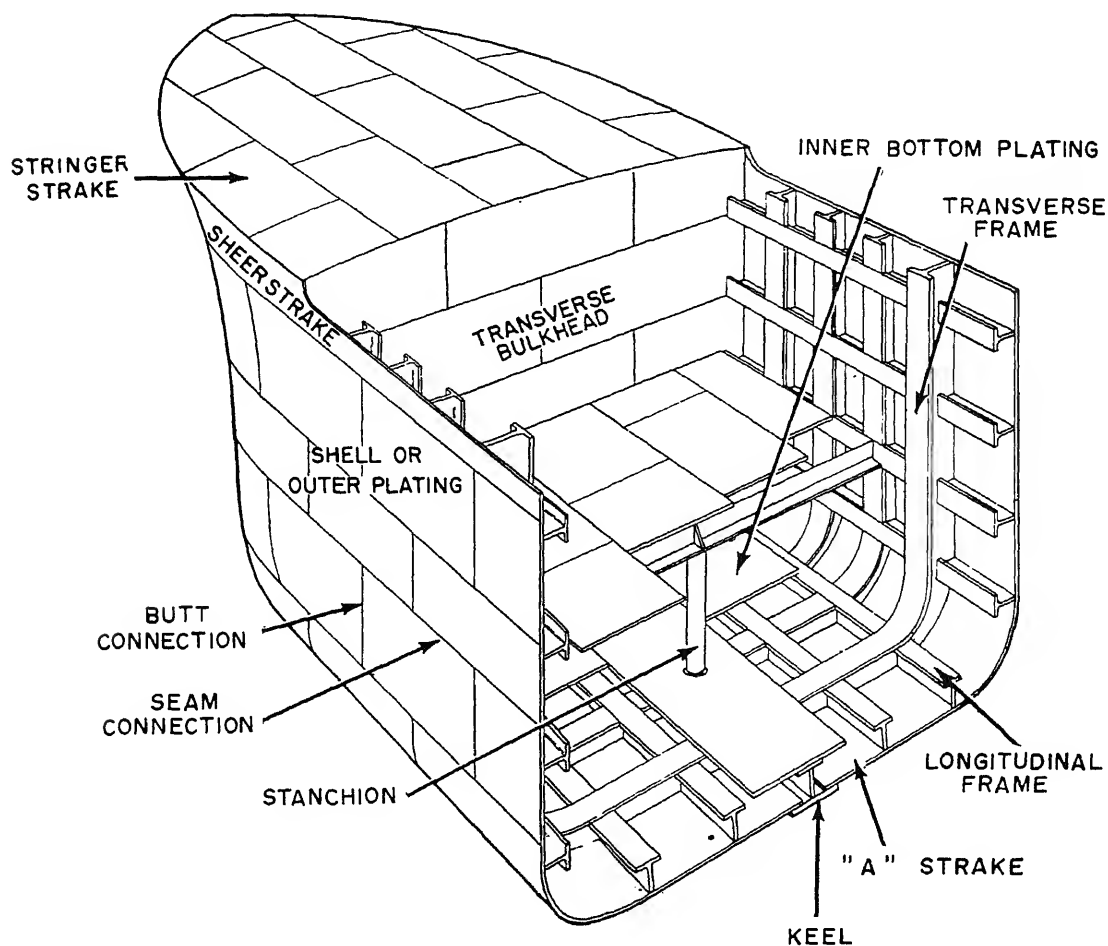


Figure 14-2.—The ship's basic structure.

cargo ships and wooden ships are built in this fashion and they are known as transversely framed vessels. The alternate method is to allow the longitudinals to remain continuous along the length of the ship. The longitudinals are quite numerous, but the transverse frames are spaced farther apart. Most naval ships are built this way and are known as longitudinally framed ships. While it is a more difficult form of construction, ships so built are stronger for a given weight than those that are transversely framed, because the plating loaded on the short edges has a higher buckling strength to resist the loads.

INNER BOTTOM AND TORPEDO PROTECTION

The two sets of stiffening frames, transverses and longitudinals, crisscross each other like a grating. When the frames are designed as deep plate members, like the keel, they form a box-like framework similar to a honeycomb. This method of designing the bottom is called grillage (cellular) construction. The transverse frames are called floors when they are designed as deep girders. The longitudinal frames are still called longitudinals. On ships larger than destroyers, the grillage double bottom is usually covered by a layer of watertight plating, called the inner bottom or tank top, that provides a barrier against flooding in the event that the outer bottom is ruptured. It also contributes greatly to the strength of the ship and encloses the grid bottom spaces, thus forming a series of tanks in which are carried fuel oil, freshwater, and ballast. Each tank is composed of several cells of the double bottom. The floors which form the partitions of the tanks are watertight or oiltight and are called solid floors. The floors within the tank have large holes (called lightening holes) cut in them both to save weight and to allow access to various parts of the tank. Such floors are called open or lightened floors. This system of outer bottom (or shell plating), inner bottom plating, and grillage double bottom results in a tremendously strong structure.

The double bottoms in a merchant-type ship extend across the bottom of the vessel from bilge to bilge. The inner bottom or tank top is

flat and acts as the bottom of the cargo holds. Destroyers and smaller vessels do not usually have two bottoms. Cruisers have an extensive double-bottom system that extends from the keel around the bilge and up the side to above the waterline. Large aircraft carriers have the most extensive double-bottom systems afloat.

Figure 14-3 shows side protective systems that have been developed as a result of extensive research, experimentation, tests, and practical experience with heavy ships hit by torpedoes. The inboard bulkhead is called the holding bulkhead; it is expected to withstand damage and deflection without leakage, even though bulkheads outboard of it are ruptured.

When an explosion occurs, the shell is ruptured with great force. As the distance into the ship increases, the destruction of structure diminishes. The intent of the design is to construct the system so that each of the side protective bulkheads will deflect as far as possible, and in conjunction with the foam absorb a maximum of the energy of the explosion before rupture occurs. This so weakens the effect of the explosion that by the time the remaining force acts upon the holding bulkhead, the latter is strong enough to withstand the resulting distortion without failure. Thus, flooding of the vital inboard spaces is prevented (although wing voids may flood over a considerable length).

At the same time, it is necessary to suppress fragmentation and flash. Experience has proved that one layer of liquid, either oil or water (several feet in transverse depth), is required to prevent large fragments of shell plating and other material from penetrating, causing fragment damage to interior bulkheads with consequent extension of flooding.

BULKHEADS

The interior of the ship is divided into compartments by vertical bulkheads (walls) that are either watertight or merely partitions called joiner bulkheads. Structural bulkheads give the ship contour, shape, rigidity, and strength; and they serve to divide the ship into numerous watertight compartments. They may be

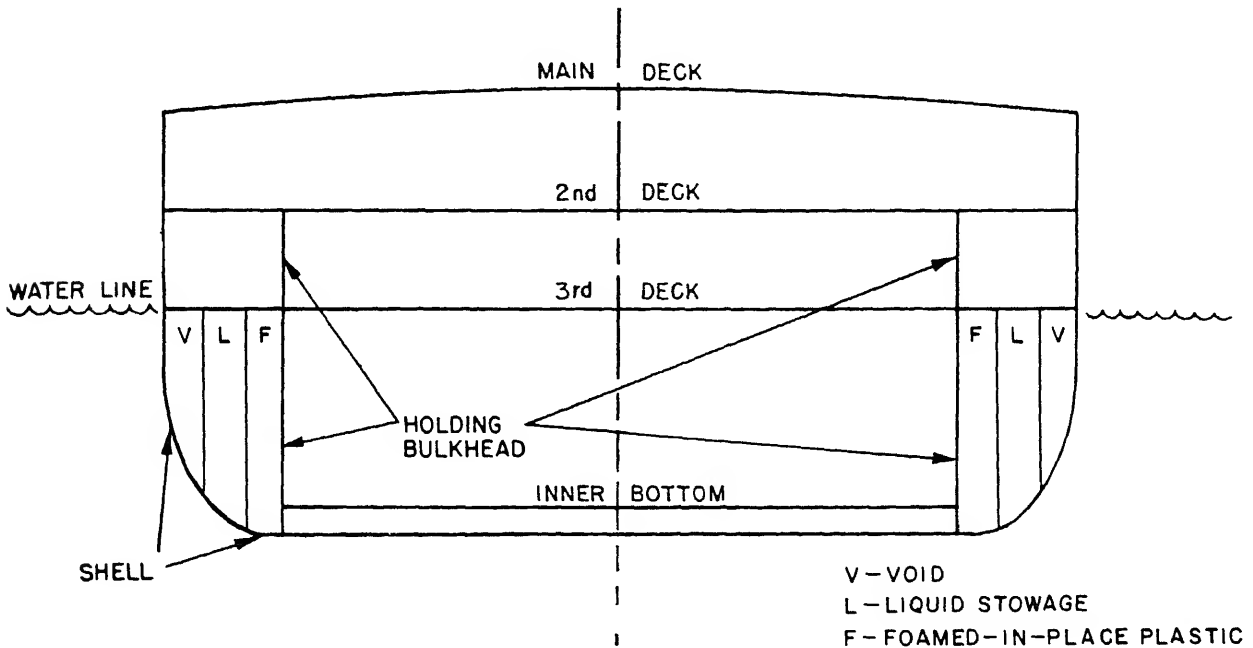


Figure 14-3.—Principle of the side protective system used in some large ships.

3.93

transverse bulkheads extending athwartships, or longitudinal bulkheads extending fore and aft. They not only subdivide the ship but tie the shell plating, framing, and decks together in a rigid structure. Transverse bulkheads are numbered to correspond with the transverse frames at which they are located.

BENTS

Decks over large open spaces, such as hangar bays on aircraft carriers, are supported by transverse frames called bents, which are inverted U-shaped structures. On carriers, the transverse section of the bent is formed by bulkheads between the flight and gallery decks. Because of the critical nature of the bents, access openings in them are restricted in number, size, and sill height.

DECKS

The ship is divided by a series of decks and platforms into tiers of compartments. The floor

of a ship's compartment always is called the deck and the ceiling always is called the overhead. (The words "floor" and "ceiling" have other meanings on board ship. As already noted, a floor is a transverse partition in the double bottoms. The ceiling is a term applied to the planking with which the inside of a cargo ship is sheathed.)

The deck normally is composed of rectangular steel plates joined into strakes similar to the shell plating. The plates in the outermost strake of deck plating are stringer plates. These are connected to the shell plating and are important structural members of the ship. Deck plating is strengthened by transverse and longitudinal deck beams and deck girders on the underside of the deck. The beams and girders usually are I- or T-beams fastened to the shell frames by means of triangular steel brackets. Decks above the waterline usually are arched (cambered) so that they are higher at the centerline. The camber aids in drainage of water.

A deck is named in two ways: by its position in the ship and by its use or function. Decks

extending from side to side and from stem to stern are complete decks; decks occurring only in certain portions of the vessel are partial decks. The uppermost complete deck is the main deck. The complete decks below this (figure 14-4) are the second deck, third deck, etc., normally being numbered downward. Partial decks that do not extend continuously from bow to stern have special names such as:

1. Forecastle deck: A partial deck above the main deck at the bow. Applicable primarily to merchant ships. Designated 01 level on naval ships.

2. Upper deck: Above the main deck from the bow to abaft amidships on merchant ships. It is referred to in naval ships as the 01 level. Succeeding levels above are named 02 level, 03 level, etc.

3. Poop deck: Above the main deck in the stern, usually only in merchant ships. Designated the 01 level on naval ships.

4. Platform deck: Below the lowest complete deck. Platforms are numbered downward, as first platform, second platform, and so on.

Miscellaneous working platforms or flats consisting of gratings are located in the machinery spaces to aid in the access to and operation of the ship's propulsion equipment.

In addition to the foregoing nomenclature, some decks are known by names describing their

use of function. In aircraft carriers (figure 14-5) the uppermost complete deck is the flight deck, and the deck immediately below it is the gallery deck. The main deck is known as the hangar deck. The levels or decks above the hangar (main) deck are designated levels, such as on CV 59 and later carriers—

01 level: first level above the hangar.

02 level: second level above the hangar.

The gallery and flight decks are also known as the 03 and 04 levels, respectively.

COMPARTMENTATION

In a cargo ship there are few decks and bulkheads are widely spaced. The resulting compartments are designated by their primary purposes, such as cargo holds, that are large enough to accommodate, in some cases, many tons of cargo. Passenger ships have smaller holds, the remainder of the space being divided by decks and bulkheads into smaller living compartments for passengers. Naval ships are more extensively compartmented than merchant ships as a whole. This is because their watertight compartmentation is more than a matter of dividing or segregating various activities aboard ship. The ability of a naval ship to withstand damage depends largely upon its compartmentation. In case of damage, the watertight boundaries of the compartments

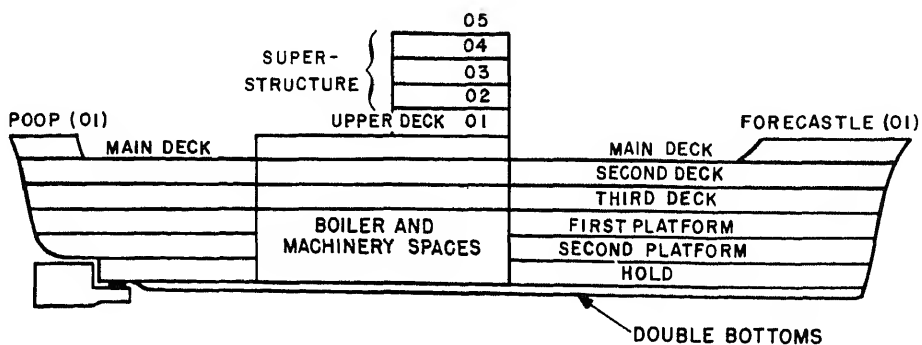


Figure 14-4.—Decks and platforms divide the ship into tiers of compartments.

restrict floodwaters and stand as a barrier between them and the undamaged portion of the vessel. Extensive compartmentation lessens the amount of seawater which will enter the vessel through a rupture in its shell plating.

WATERTIGHT INTEGRITY

If a compartment is not watertight, it is useless as a barrier to flooding of the ship. The quality of watertightness is known as watertight



134.7

Figure 14-5.—It takes 4000 men about 3-1/2 years to create a carrier. Still far from completed, some 46,000 tons of steel, 175,000 gallons of paint, and 3 million feet of electrical cable have been used in the partial construction of this CV.

integrity. The higher the watertight integrity of a compartment, the more effectively it limits flooding. The battle to maintain the watertight integrity of the ship as a whole is a complicated and never-ceasing one. The waking hours of a considerable number of any ship's crew are concerned in one way or another with the ceaseless patrol and inspection necessary to keep the watertight integrity high and the ship in battle trim.

Boundaries of watertight compartments are pierced by doors and hatches, and by countless holes to accommodate water, steam, oil and air piping, electric cables, ventilation ducts, and other necessary utilities. Each hole is plugged by a stuffing tube, pipe spool, or other device to prevent water from leaking in around piping and cables. Piping and ventilation ducts are equipped with cutoff valves or other closures at each main bulkhead, so that they can be closed off if ruptured. Rigid restrictions are enforced against opening watertight doors or hatches during action or in dangerous waters. All of these "defensive" precautions must be taken to ensure the full use of the ship.

The main transverse watertight bulkheads are not penetrated for access below the damage control deck. The damage control deck is the lowest deck to which fore-and-aft access is permitted and these accesses are by watertight doors. The damage control deck is in most cases the first deck below the main deck.

COMPARTMENT NUMBERING IN SHIPS CONSTRUCTED BEFORE MARCH 1949

Most ships constructed before March 1949 are divided, from forward aft, into three divisions (as in figure 14-4) labeled A, B, and C. Division A extends from the stem to the forward transverse bulkhead of the forward machinery compartment. Division B includes the space from that bulkhead to the after bulkhead of the after machinery compartment. Division C comprises the remaining space aft. Although a ship has only these three main divisions, this does not mean that there are only three transverse bulkheads. There are many others, all

supporting the structure of the vessel and contributing to its compartmentation and watertight integrity.

Compartments are designated by various letters and numbers to indicate their location and use. For example, in the designation B-215-L, B indicates the division of the ship in which the compartment is located, the first numeral shows which deck it is on, and the last two numerals indicate the number of the compartment within the division. Odd numbers are used for compartments on the starboard side; those on the port side are identified by even numbers. In the example given, the compartment is the fifteenth in Division B. It is on the starboard side and on the second deck.

To define the contents or use of a compartment, the numeral group is followed by a designating letter as follows:

A—storeroom	L—living space
C—ship control	M—ammunition
E—machinery	T—trunks and passages
F—fuel	V—void
	W—water

As a general rule, compartments on the main deck are numbered from 101 to 199 in each division beginning at the forward end of the division. Compartments on the second deck are in the 200 series, those on the third deck in the 300 series, and those on the first level (above the main deck) from 0101 to 0199. The series 901 to 999 is used for double-bottom compartments. Compartments on halfdecks have the same numeral as the deck below but are indicated by the letter H which is added after the division letter; e.g., BH-215-V.

For compartments extending from the inner bottom up through two or more decks, the designation is the division letter followed by a number in the series 1 to 100. Examples of compartments of this type are the engineroom, fireroom, peak tank, and cargo hold. Thus a fireroom might have the designation B-1.

Every door, hatch, manhole, or other means of ingress to a compartment has a metal label on it that gives the door's number and location, plus a description of what is in the

numeral designation just discussed. For example:

W.T. D. 4-16-6
C.P.O Stores
A-412-A

The initials W.T.D. stand for watertight door. The "4" indicates that the compartment is on the fourth deck, the "16" that it is at or just abaft the 16th frame, and the "6" that is the third opening, from inboard out, on the port side (odd-numbered openings being on the starboard side). The compartment is a storeroom for the use of CPOs, it is located in Division A, and it is the sixth compartment from the bow on the port side.

COMPARTMENT NUMBERING IN SHIPS CONSTRUCTED AFTER MARCH 1949

In ships built after March 1949, compartment numbers contain the following information in the order given and each part is separated by a hyphen: deck number, frame number, relation to centerline of ship, and usage of compartment.

Deck Number

The main deck is deck number 1. The first deck or horizontal division below the main deck is number 2; the second below, number 3, etc., consecutively for subsequent lower division boundaries. Where a compartment extends down to the shell of the ship, the number assigned the bottom compartment is used. The first horizontal division above the main deck is number 01, the second above 02, and so on. The deck number established as above becomes the first part of the compartment number and indicates the vertical position within the ship.

Frame Number

Horizontal position of a compartment within the ship utilizes its position relative to a

foremost bulkhead of the enclosing boundary of a compartment is its frame location number. Where a forward boundary lies between frames, the frame number forward is used. Fractional numbers are not utilized, except where frame spacing exceeds 4 feet.

Relation to Centerline

Compartments located so that the centerline of the ship passes through them carry the number 0. Compartments located completely to starboard of the centerline have odd numbers; those completely to port bear even numbers. Where two or more compartments have the same deck and frame number and are entirely starboard or entirely port of centerline, they have consecutively higher odd or even numbers, as the case may be, numbering from the centerline outboard. For example, the first compartment outboard of the centerline to starboard is 1, the second, 3, etc. Similarly, the first compartment outboard of the centerline to port is 2, the second 4, and so on.

Compartment Usage

The fourth and last part of the compartment number is a capital letter that identifies the assigned primary usage of the compartment. Secondary usages are not considered and only a single-letter assignment is made, except that on dry and liquid cargo ships a double-letter identification designates compartments assigned to cargo carrying. The letters are assigned in accordance with the following categories:

<u>Letter and Category</u>	<u>Types of Spaces</u>
A—dry stowage	Storerooms, issue rooms, refrigerated spaces
C—ship control and fire control operating spaces	Plotting rooms; CIC radio, radar, and sonar operating spaces; pilothouse

NAVAL ORIENTATION

<u>Letter and Category</u>	<u>Types of Spaces</u>	The application of the foregoing principles is illustrated by the following example:
E—engineering spaces	Main propulsion spaces; pump generator, and windlass rooms	3-75-4-M 3—third deck 75—forward boundary is at or immediately abaft of frame 75 4—second compartment outboard of CL to port M—ammunition compartment
F—oil stowage	Fuel, diesel oil, and lubricating oil tanks	
G—gasoline stowage	Gasoline tank compartments, cofferdams, trunks, and pumprooms	
J—JP-5 tanks		
K—chemicals and dangerous materials	Stowage of chemicals and semisafe and dangerous materials, except oil and gasoline tanks	
L—Living spaces	Berthing and messing spaces, medical and dental areas, and passageways	
M—ammunition	Stowage and handling	
T—vertical access trunks		
V—voids	Cofferdam compartments other than gasoline, void wing compartments	
W—water stowage	Compartments storing water, including bilge, sump, and peak tanks	
Q—spaces not otherwise covered	Ships, offices, laundry, galley, pantries, and wiring trunks	

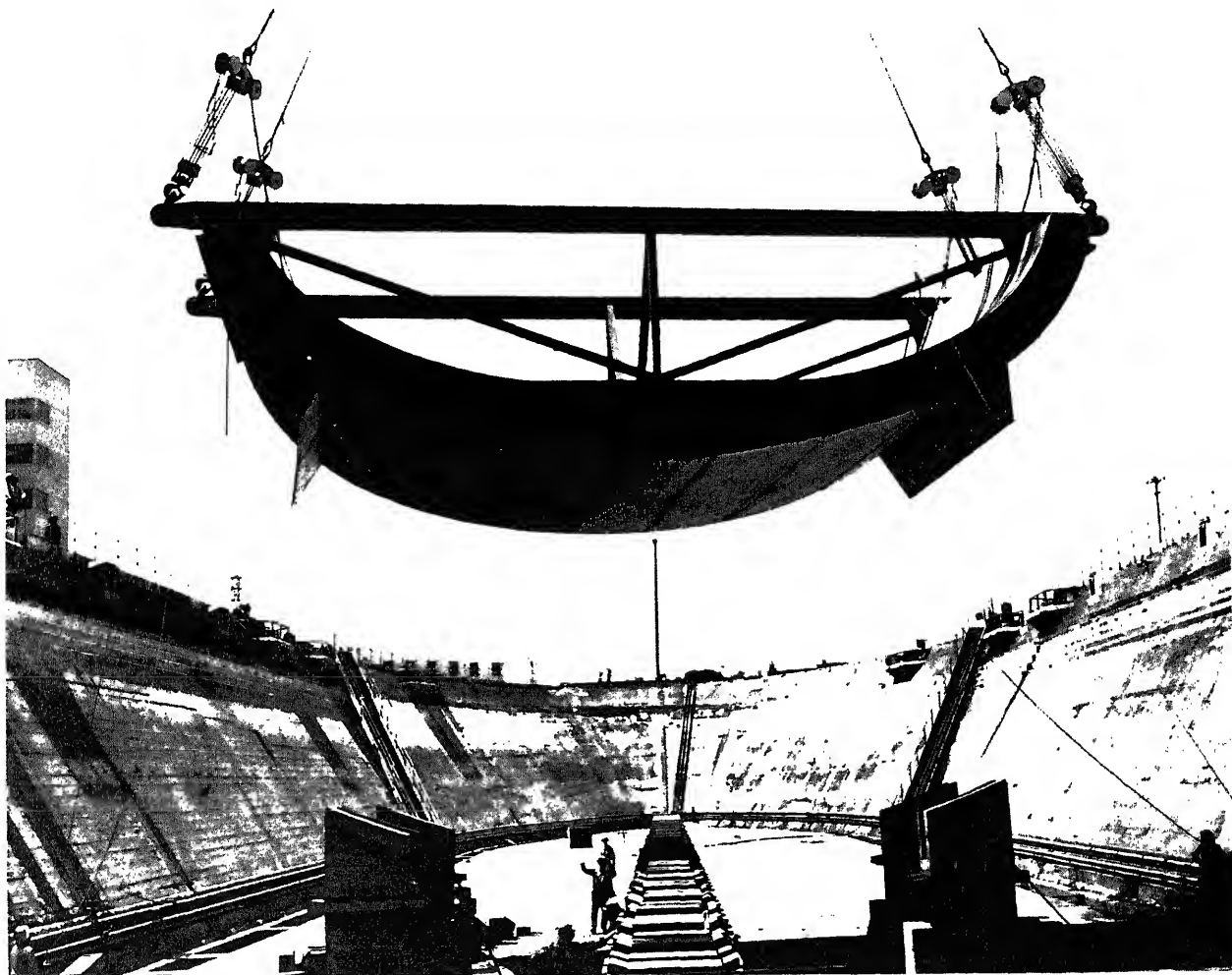
SHIPBUILDING PROCEDURE

The procedure followed in building a ship varies widely, depending on the type of ship and by whom it is built. In general, however, the primary operations are similar. The ship may be erected in a drydock or on sloping concrete building ways. The slope of the ways is their declivity angle. The ways are sloped so that when the ship is launched it slides into the water under its own weight. The blocks are high enough so that men can work under the hull while the ship is being built. A wooden cradle, shaped in the form of the shell of the ship from the keel to around the turn of the bilge, is erected on either side of the building blocks. Bilge cribs and/or shores are placed along the bilge at intervals to support the weight of the sides as the ship is built. As the hull is erected, scaffolding is raised along the sides to facilitate construction.

SUBASSEMBLY BAYS

The modern practice is to assemble rather large portions of the ship in subassembly bays located some distance from the building site. At one point, all the bulkheads are constructed, complete with stiffeners and other fittings. At other bays, whole sections of the side plating with frames attached are welded. Complete sections of double bottoms, consisting of shell plating, transverse floors, longitudinals, and inner bottom, equipped with piping and valves for the tanks and other fittings, are assembled at

The double letters AA, FF, and GG identify spaces utilized to carry cargo.



134.74

Figure 14-6.—Keel assembly and first section of completed inner bottom are lowered to the building blocks.

other points. Large gantry or “whirly” cranes carry these subassemblies, some of which weigh 50 tons or more, to the ship.

ERECTING THE SHIP

There are various sequences used in erecting a ship, depending upon the type and size of the ship, the type of construction, and the facilities for subassembly. There are certain basic principles, however, that must be adhered to.

is to work from the center outboard and simultaneously forward and aft. The first operation in building a ship is placing the keel sections or assemblies on the building blocks. For some ships, the keel and adjacent inner bottom may be assembled elsewhere and swung into place as a unit, as in figure 14-6. When size and weight are prohibitive, the keel and bottom must be built on the blocks. After the keel, or erection section that includes the keel, is laid, it is extended in both directions. Bottom sections

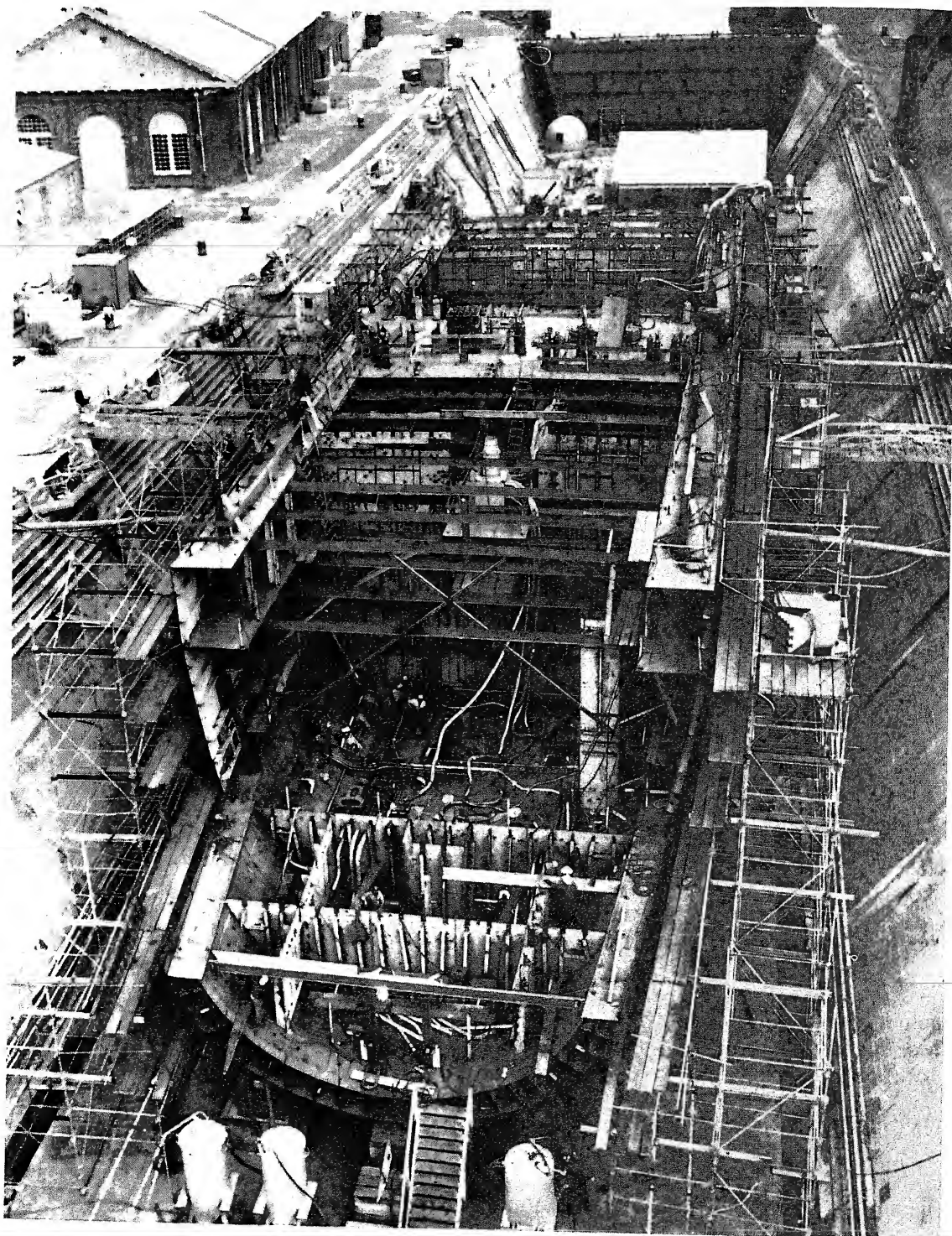
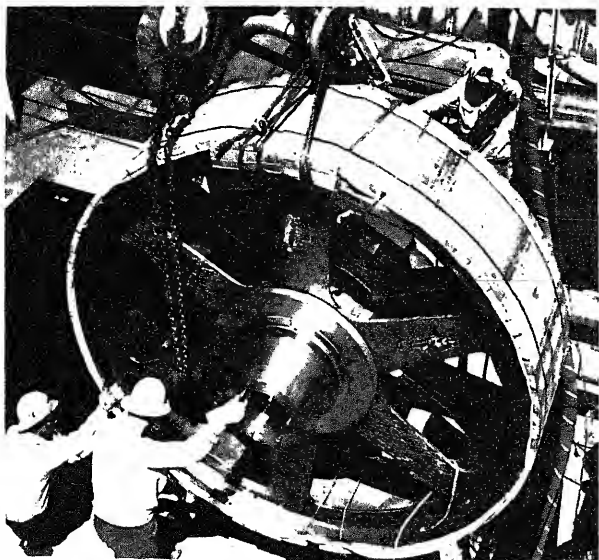


Figure 14-7.—CG under construction. Although the hull structure assembly almost fills the drydock, installation of deck plating awaits the lowering of large equipment below decks. 134.75

forward and aft. Next, the main transverse strength bulkheads, up to the first continuous deck, are erected in place as erection of the bottom and bilge structure progresses forward and aft. Then the side shell assemblies are erected, depending on the size of the ship, above the intercostal deck(s). Generally, longitudinal bulkheads are then put in place to steady the main transverse bulkheads in a fore-and-aft direction, followed by the erection of transverse and longitudinal assemblies between continuous decks. Additional side framing and shell plating are then placed in position and fastened to the existing structure. The frames and decks are connected to the previously erected structure.

As the building process progresses from amidships toward the ends, the double-bottom and side-shell plating are carried aft at the earliest possible date to join the stern post assembly and/or propeller struts. This is necessary to install main propulsion and major auxiliary machinery and shafting (figures 14-7 and 14-8) at an early date. The whole bow section usually is constructed at a subassembly point and placed in position (figure 14-9) rather late in the building schedule. The last step in the



134.76

Figure 14-8.—Bull gear for the main propulsion reduction gear is lowered into No. 2 engine room.



134.77

Figure 14-9.—The completed bow section being readied for positioning.

prelaunching construction schedule is the painting of the exterior of the vessel.

LAUNCHING

A ship can be launched in one of four ways: drydock-launched, side-launched, end-launched, or float-off-launched. In the first method, the dock is simply flooded to outside water level and the ship is floated out. Side launching is sometimes used for naval ships. Ships are end-launched stern first. Even before the keel is laid, launching calculations are undertaken to

determine the declivity of the ways for a sliding launch and the best position on the ways for building the ship, as well as the method of launching and the proper time to launch. In the latest and most unique method of launching, called float-off, the ship is constructed in modules in an integration area on powered pallet cars. Adjacent to the ship integration area is a submerged concrete gridwork and support platform. Resting on top of this platform is a huge pontoon. When ballasted, the pontoon rests firmly on the concrete platform. The pontoon is equipped with pallet car tracks identical to those in the ship integration area. Prior to moving the ship onto the pontoon, the pontoon is ballasted and the pallet car tracks are precisely aligned (pier-to-pontoon). The inboard wing tanks of the pontoon are removable to permit the ship to be translated from the ship integration area to the pontoon. The ship is slowly moved into position on the launch pontoon and made ready for launch. The inboard wing tanks are replaced on the pontoon and the pontoon is deballasted so it floats free of the concrete platform. The pontoon is then towed into the deep water channel where ballasting begins. During this time the pontoon is under positive control by means of lines anchored outboard of the pontoon, as well as by restraining lines secured to the pier. When the ship is afloat, it is towed clear of the launch pontoon and then to the outfitting docks.

During construction of ships in the conventional manner, the weight of the ship is supported by keel blocks, heavy shores, and cribbing. Well before the launching date, shipwrights prepare the launching ways. First, they erect ground ways for a sliding launch. These are solid wooden structures (tracks) below and on either side of the ship; the tracks, two or four in number, extend well into the water. Mounted on the ground ways and temporarily secured to the ship are sliding ways, on which the ship rides into the water; the sliding ways serve much as do runners on a sled. A heavy layer of lubricating grease is laid between the ways to reduce friction and ease the ship on her first trip.

One of the first phases of transferring the weight of the ship from the timbers shoring her

up to the sliding ways is "wedging up." This consists of driving scores of long wooden wedges under the ship, at right angles to her, in such a way as to force the sliding ways hard up under the ship and hard down on the fixed ground ways. Then, workmen gradually remove the shoring and cribbing, in accordance with carefully timed plans, to shift the weight of the ship to the launching ways.

The ship now is ready to slide down the incline of the building ways by her own weight. Holding her back, however, is a trigger mechanism that restrains the ship until the proper time. The signal to launch is flashed simultaneously at the sponsor's stand and in the trigger pit. It takes about 30 seconds for the ship to slide into the water. Chain drags of many tons in weight usually are used outboard of the sliding ways, and attached to the ship's hull, to slow the advance and to stop the ship after it enters the water.

The name of the ship is chosen by the Secretary of the Navy, upon recommendation of the Chief of Naval Personnel. The sponsor for the ship is designated by the Secretary of the Navy in accordance with naval customs and tradition.

Launching Ceremony

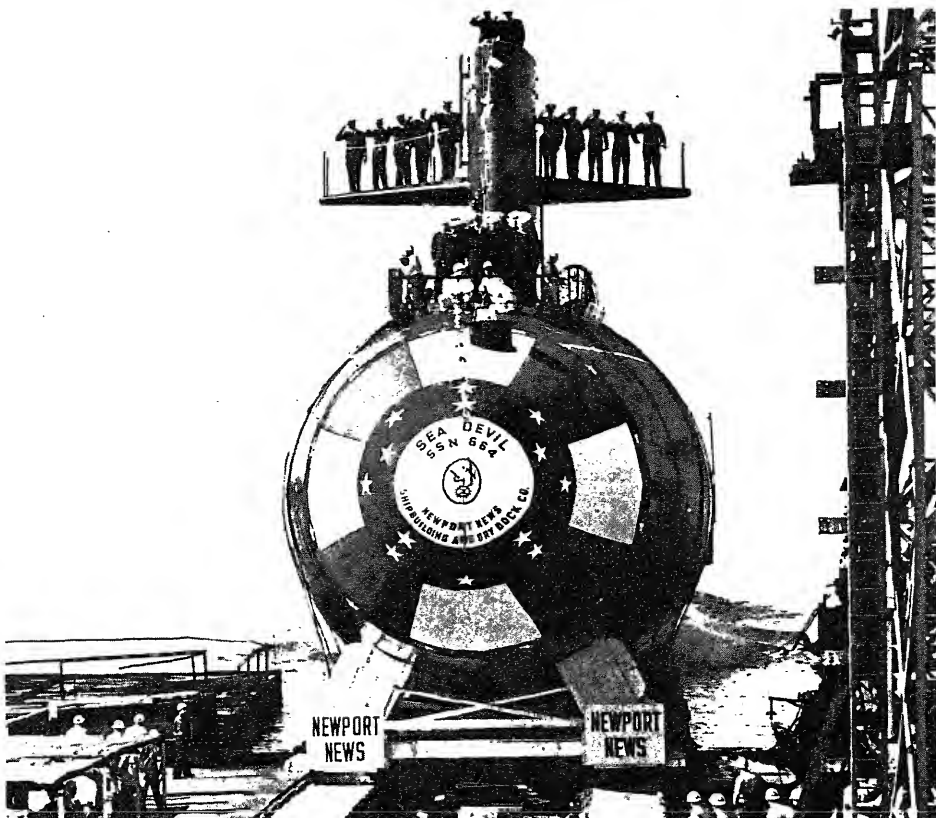
At the time of launching, the sponsor, naval officers, officials of the shipbuilding company, and the commandant (or his representative) of the naval district in which the vessel is being built, assemble on a flag-decorated platform erected for the occasion at the bow of the ship. There may be several addresses, and a chaplain offers a prayer. For the ship's future service, he asks, "May this new vessel of our Navy be guarded by Thy gracious providence and care. May she bear the sword to bring peace on Earth among the nations. Let her be a terror to those who do evil and a defense to those who do well."

The band plays the national anthem, flags and pennants wave, and as the ship begins to move, the sponsor breaks upon her bow (figure 14-10) a gaily wrapped bottle of wine or water, saying, "I name you _____ in the name of the



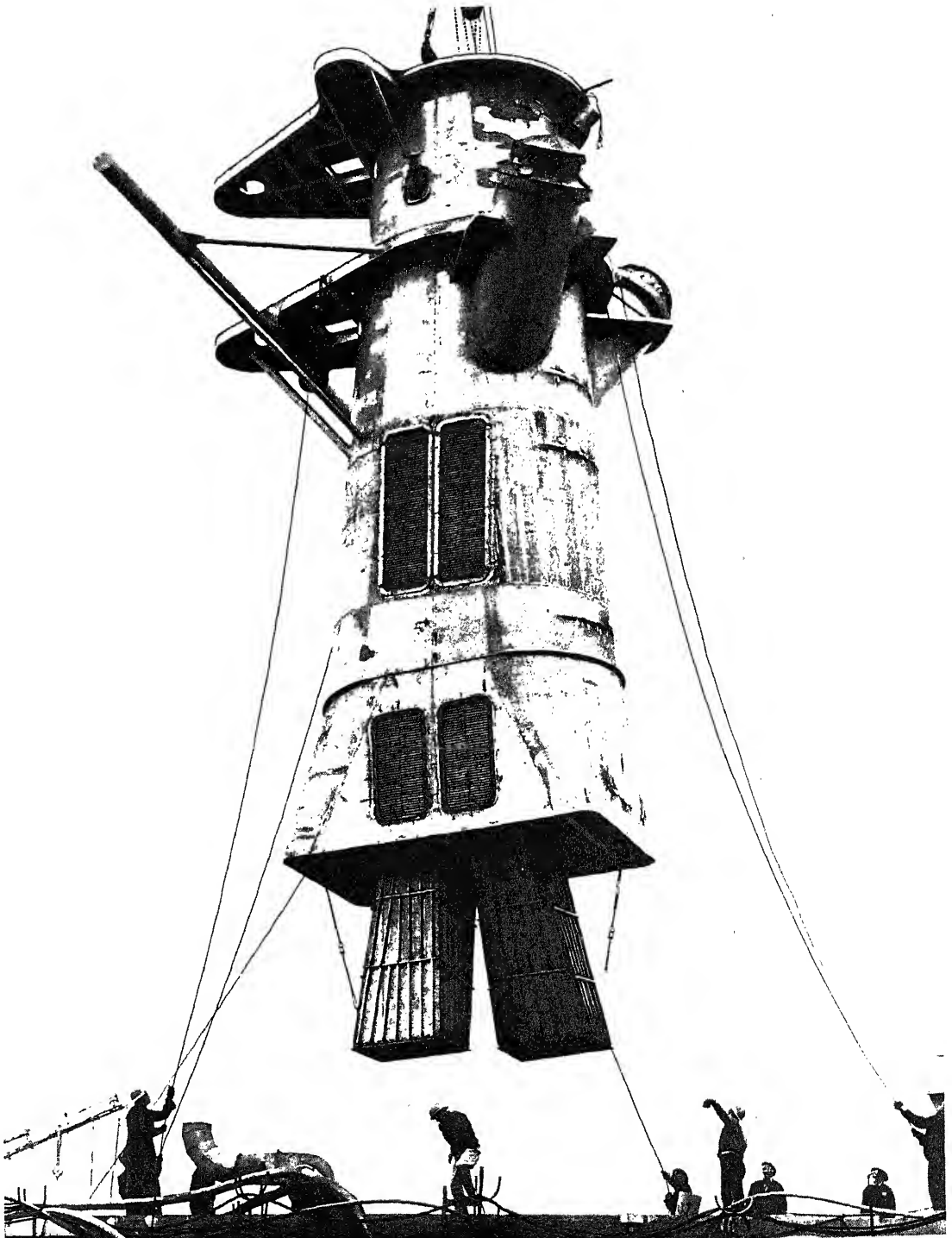
134.80

Figure 14-10.—Mrs. Ulysses S. G. Sharp, Jr., wife of Admiral Sharp, breaks the traditional bottle of wine on the bow of the combat store ship Concord.



134.79

Figure 14-11.—“May she bear the sword to bring peace on earth among the nations.” This phrase is taken from the prayer usually spoken by a chaplain at the ship’s launching. From earliest days, launching ceremonies have had some religious aspect.



United States,” and frequently adds, “May success always attend you.”

FITTING OUT

After the christening, the ship slips into the water (figure 14-11). Then tugs tow her to a fitting-out pier. Here giant cranes move the heavy machinery into the ship. Superstructure, masts (figure 14-12), guns, turrets, and other equipment are installed. Miscellaneous auxiliary machinery is placed in position. Living quarters, galleys, messing compartments, and other spaces are painted and fitted with furniture and equipment. There are innumerable items that

must be installed on board before a ship is pronounced complete and ready for commissioning. A year may elapse between the launching and commissioning of larger ships.

COMMISSIONING

When the ship is ready for commissioning, orders are given to the commandant of the naval district, or of the naval shipyard where she is building, to place her in commission.

On the day appointed, her officers and crew assemble in dress uniform (figure 14-13). The commandant and members of his staff are present. While the band plays and all stand at

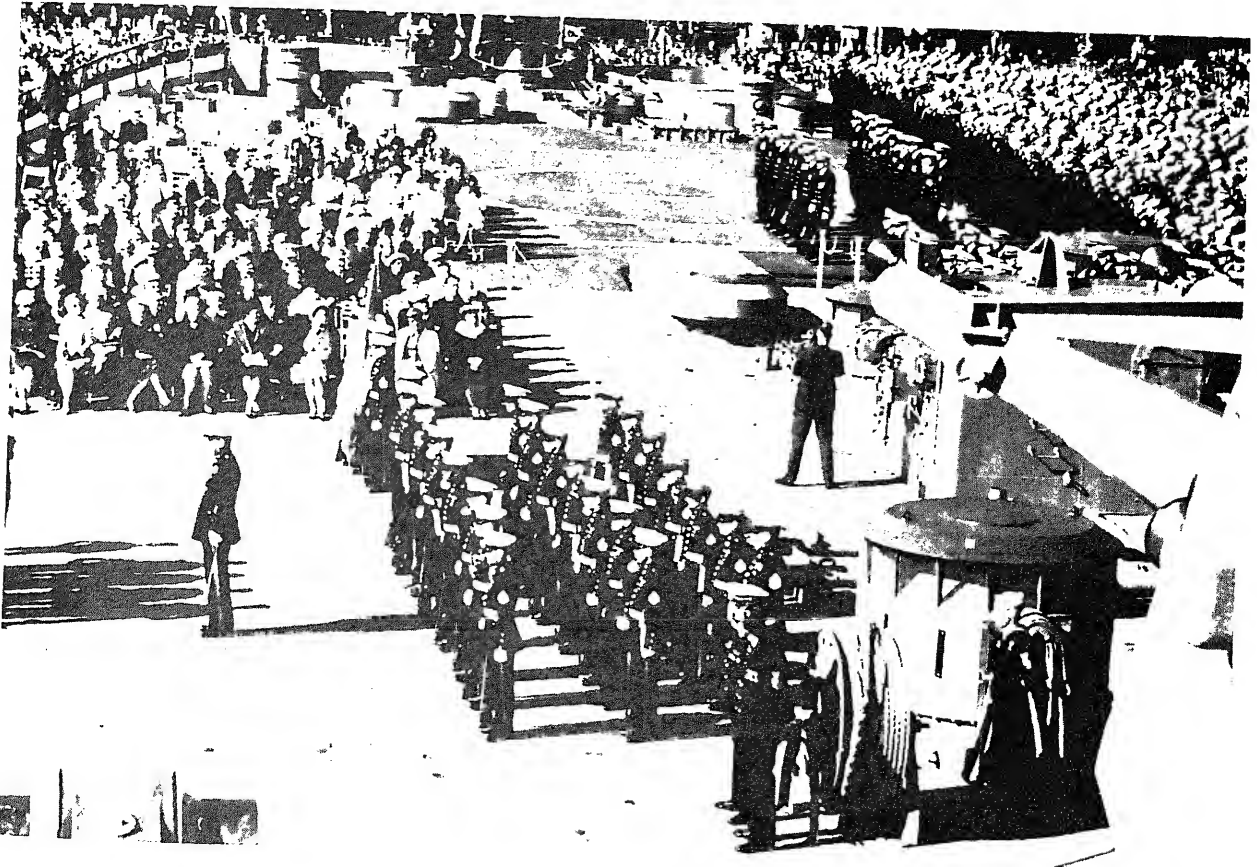


Figure 14-13.—The impressive formal commissioning ceremony places a ship in the official service of the Government. Here honored guests, crewmen, officers and a U.S. Marine honor guard assemble on deck during the commissioning of the battleship New Jersey in April 1968.

134.152

attention, the commandant orders the national ensign hoisted to designate her as a ship in the official service of the Government. The commission pennant is unfurled at the mainmast.

Then the commandant formally turns the ship over to the prospective commanding officer. The latter reads aloud his orders from the Navy Department to command the ship. His first order is, "Set the watch." The officers and crew take their stations in the new ship.

After commissioning, the ship starts her trials—acceptance and final acceptance trials, sound surveys, electromagnetic radiation surveys, antenna pattern surveys, sonar and fire control calibration, weapons qualification trials, and so on. The ship also is tested for seaworthiness, speed, endurance, and ability to

maneuver. Upon completion of this "shakedown" cruise, the ship returns to the outfitting yard for her post-shakedown availability to have all discrepancies corrected.

Most ships built on the east coast then proceed to Rockland, Maine, for standardization trials over the measured mile. (On the west coast, ships run the measured mile on the Torrey Pines range near San Diego.) Standardization trials are conducted by the Board of Inspection and Survey. Careful checks are made of the ship's fuel consumption, speeds, propeller revolutions, and other characteristics, to set a standard for service operation. Upon completion of these trials and any additional minor items of work found to be necessary, ship's personnel undergo a strenuous 6- to 8-week shakedown training cruise upon the successful completion of which the ship is ready to join the Fleet.

CHAPTER 15

EXTERNAL EQUIPMENT OF SHIPS

The external equipment described in this chapter is common to most naval vessels. Knowledge and use of the correct terminology, when referring to the hull, ordnance equipment, ground tackle, bridge assembly, etc., is essential.

THE HULL

In the description of a ship, the term "hull" usually includes her interior framework, inside and outside plating or planking, decks and bulkheads, and deckhouses (but does not include masts, rigging, equipment, and items generally classed as superstructure). For the purpose of this section we shall consider the hull

as a single watertight shape. It is covered on top with a deck, or with parts of several decks, referred to either singly or collectively as weather deck. (See figure 15-1.)

The edges of the weather deck from the bow to the stern are usually guarded by light cables or chains called lifelines, or by an extension of the shell plating of the ship above the deck edge, called bulwarks. The waterline is the line to which a hull sinks when in the water (submarines have a measurable draft except when submerged). The vertical distance from this line to the lowest exposed deck is the freeboard.

Draft is the vertical distance from keel to waterline. Since the drafts forward and aft may

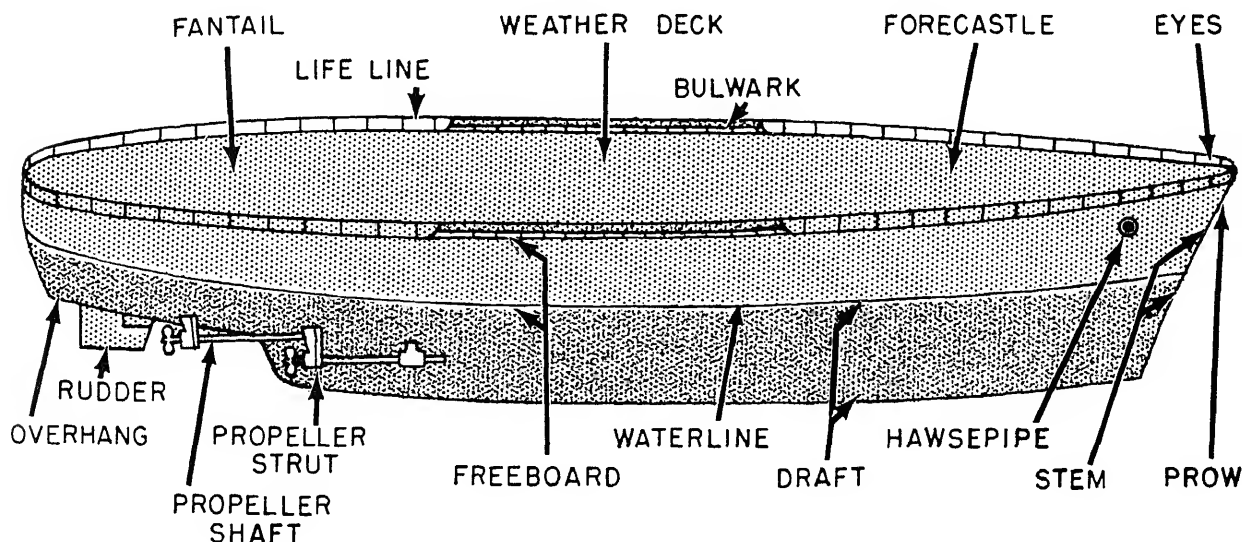


Figure 15-1.—Parts of a ship's hull.

numbers are painted on the sides of the ship at both bow and stern to measure the drafts. The relation between the drafts forward and aft is called the trim. Many ships are constructed in such a way that these two drafts are equal when they are in trim. (Trim is the angle to the horizontal in which a vessel rides.) Some ships, notably landing craft, may be designed to have a much smaller draft forward than aft. Submarines, on the other hand, normally are trimmed "heavy forward" for submerged cruising. When unusual conditions of loading or underwater damage cause a ship to be out of trim, she is said to be "by the head" or "by the stern." Trim may be adjusted by filling or emptying peak tanks in the bow and stern of the ship.

Frequently a ship's characteristics are improved if she has a slightly greater draft aft. When a ship is so designed, she is said to have been designed with a drag.

FORE PART OF THE HULL

The general area of the weather deck in the forward part of the ship is the forecastle. The nearly vertical structural member of the hull at the bow is called the stem. The bow structure above the waterline is known as the prow. The part of the weather deck nearest the stem is called the eyes of the ship. (Under conditions of reduced visibility at sea, a special lookout is normally stationed in the eyes.)

AFTER PART OF THE HULL

The quarterdeck is that part of the main or other appropriate deck designated by the commanding officer for the conduct of official and ceremonial functions. It is the watch station of the OOD in port; usually it is an area adjacent to the gangway. The deck area at the stern of a flush-deck ship is the fantail. The part of the ship which literally overhangs the water and extends abaft the rudder is the overhang. In the after part of the vessel, the hull usually narrows

ship. Below the waterline are the propeller shafts, the propellers (screws), and the rudder. In multiple-screw ships the propeller shafts project to such an extent that they must be supported by braces, called propeller struts (extending from the hull). To protect the propellers, metal frames called propeller guards are built out from the hull, above the water. Otherwise, because of the run of the ship, the screws might be damaged when the ship is close by a pier.

AMIDSHIPS

"Amidships" refers to an area of somewhat arbitrary length located midway between the bow and stern. The term is used to convey the idea of general locality, but not of definite extent.

ORDNANCE EQUIPMENT

The primary mission of a ship includes a number of designed and contingent tasks. Compromises involving the consideration of these tasks, weight and space limitations, and the cost involved determine the types and amounts of ordnance equipment carried by a ship.

Ordnance equipment most widely used aboard ship are guns, guided-missile launching systems, and torpedo tubes. This equipment is used in association with the many types of weapons in the Navy arsenal, including torpedoes, mines, bombs, guided missiles, etc. The remainder of this section introduces the ordnance equipment. Specific weapons are discussed in chapter 18.

GUNS

Of the ordnance equipment mentioned above, the gun is the Navy's oldest and is the most frequently employed aboard ship. Modern improvements in the construction of guns and ammunition have revolutionized gunnery by tremendously increasing the destructive power

and maximum range of this weapon. During the Revolutionary War, American ships fought at ranges of only several hundred yards, using cast-iron guns without sights. Inaccurate, they threw solid shot that usually failed to penetrate. Modern guns hurl explosive shells that may weigh up to 260 pounds. The range of the largest (8-inch) gun now in service exceeds 15 miles; a ship or other target can be destroyed if struck by only one of its big projectiles.

Classification

Naval guns, exclusive of small arms, are classified according to size, type of ammunition used, and method of fire.

In size, they may be grouped as major, intermediate, and minor calibers. Major calibers are 8 inches and larger. Intermediate calibers are greater than 3 inches and less than 8 inches. Minor calibers are 3 inches and below.

The U.S. Navy uses fixed and separated ammunition. An example of fixed ammunition is that for the 3"/50 in which the propelling charge, primer, and projectile are one unit. In separated ammunition, the primer and powder are contained in a case similar to that for fixed ammunition, but the projectile is separate. The 5"/54 fires this type of ammunition.

Methods of fire include single, semiautomatic, automatic, and rapid. In single fire, the breech mechanism is always opened and closed by hand.

Semiautomatic fire uses the force of the explosion to open the breech, eject the cartridge case, and cock the firing mechanism. Loading, however, requires a member of the guncrew to place a round in the breech or tray. The 5"/38 and 6"/47 case guns are examples of semiautomatic guns.

Automatic fire uses the force of the explosion to perform all loading and reloading operations. The 20-mm guns are automatic guns.

Rapid fire (RF) uses power-operated equipment to automatically load rounds into the breech as long as the electrical loading circuits are closed. The 3"/50; 5"/54, Mk 45 and Mk 42;

and 8"/55 case guns are examples of rapid fire guns.

Mountings

Large guns are usually mounted in turrets, boxlike structures of armor enclosing the breech end of two or three guns. The turret rotates within and on top of a barbette, a fixed circular tube of armor extending down to the armored decks. The barbette encloses the ammunition-handling rooms, hoists, and the gun-laying machinery for the turret. There are only a few older cruisers with this type of mounting.

Smaller guns are housed in gun mounts, which are of two types: open and closed. The latter type (figure 15-2) resembles a turret but does not have an armored barbette.

The mounts or turrets of all naval guns except the smallest are trained (rotated in the deck plane) and the guns are elevated by electric or electric-hydraulic power drives. These are usually automatic and move the gun to a position designated by a fire control system.

Batteries

Navy gun mounts are sometimes classed by batteries, using the terms "main," "secondary," and "antiaircraft" or "AA." A gun such as a 5"/54 may be part of the AA battery on a cruiser, but on a destroyer it may be considered part of the ship's main battery. The classification of gun mounts according to this plan varies from one type of ship to another and is a matter of local option. Generally speaking, the main battery is composed of the ship's primary fighting weapons. Secondary batteries are the ship's second string of ordnance. Usually these guns are of shorter range than the main battery, but have a better rate of fire. AA batteries are composed of guns designed to be fired against aircraft.

A system which eliminates much of this overlapping of classification is now being used in several official publications. Gun mounts under the new system divide guns into the following three classifications.

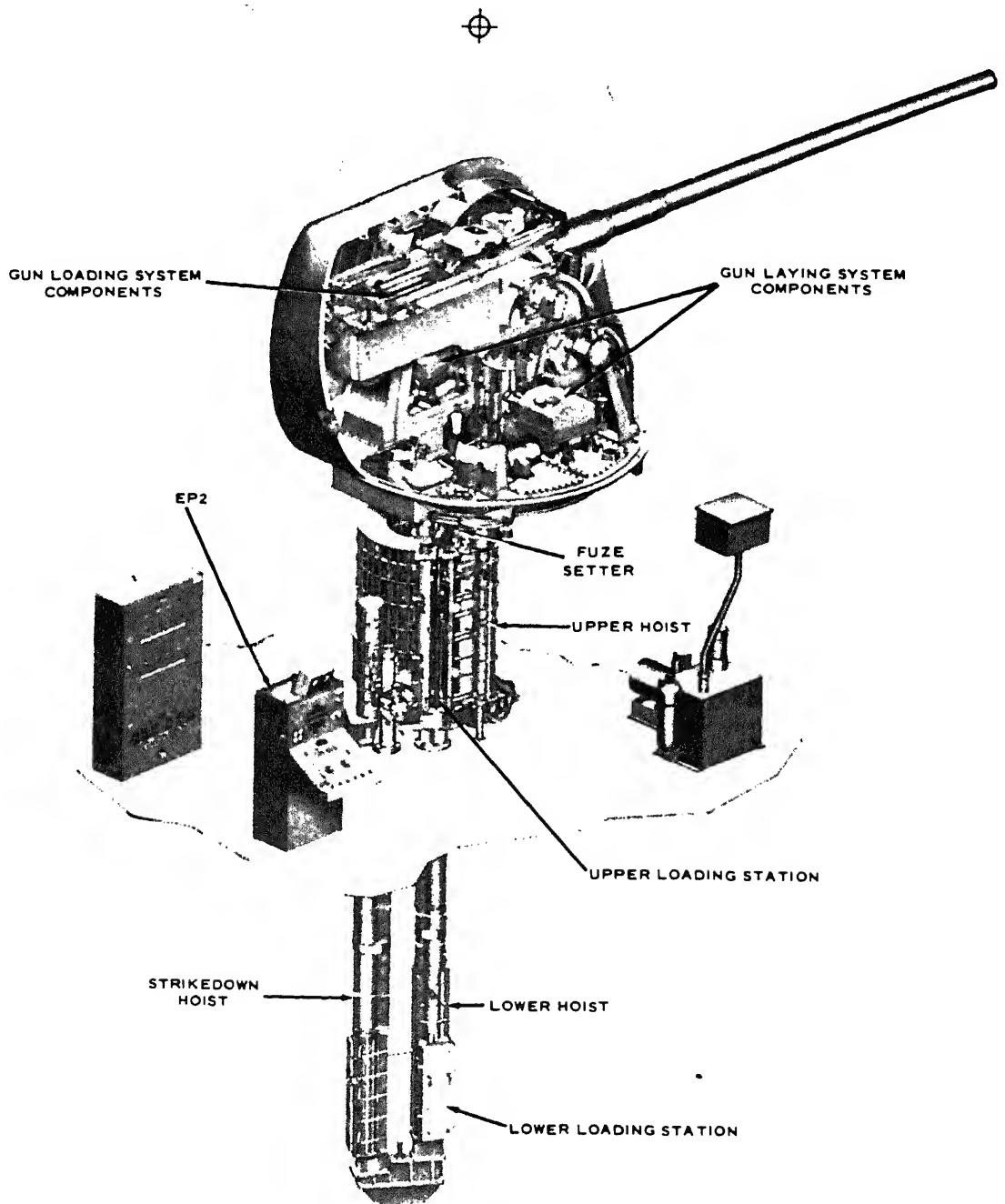


Figure 15-2.—A 5"/54 caliber Mk 45 Mod gun mount and associated equipment.

SURFACE BATTERY.—These weapons are designed to be used against surface or shore targets only.

DUAL-PURPOSE BATTERY.—These weapons are designed to be used against both surface (or shore) and aircraft targets. Also, the fire control system with which they are normally associated is equipped to handle both surface and AA problems—for example, 5" guns.

MACHINEGUN BATTERY.—Guns with this classification are primarily AA weapons. In emergency, of course, they could be used against any target, but their associated fire control equipment can compute accurately for AA targets only.

FIRE CONTROL EQUIPMENT.—Fire control equipment must solve a difficult problem. It must direct the guns to hit a moving target with a projectile that takes a considerable length of time to arrive at its destination. Accordingly, the gun cannot be aimed at the point where the target is when detected; it must aim at the point where the target will be when the projectile gets there; that is, the predicted position of the target. Furthermore, the path of the projectile is not a straight line but is curved by gravity; and the projectile is acted on by wind, variations in atmospheric density, and other forces. In addition, the guns and the fire control equipment are mounted on a ship that is rolling, pitching, and moving through water.

The fire control equipment that solves this problem is usually known as a gunfire control system. There are frequently more than one of these systems for each battery, and the whole battery may be controlled by one system or may be broken down into smaller groups, each controlled by a separate system.

A gunfire control system generally consists of two parts, one above deck and the other below deck in a protected position. The abovedeck portion consists principally of a gun director which acts as the eyes of the battery. It is trained and elevated so that its optics and/or radar are always directed toward the target, thus establishing a line of sight. Directors vary in size and complexity from very large rotating structures with complex electrical driving

mechanisms, to small, hand-operated devices, often little more than a pair of handlebars controlling some sort of sight.

Introduction of radar into the fire control system has greatly enhanced its flexibility and accuracy by providing more accurate range and nearly as good target direction data as the best optics.

The below-deck components of the system usually comprise a computer and other related equipment, although the computer is sometimes part of the director. To compute the orders necessary for aiming the guns properly to hit the target, the computer uses data concerning target coordinates as determined by the director and/or radar. It also uses other quantities that depend upon the wind, motion of the ship, atmosphere, and information concerning the projectile path which is built into the computer. These orders are transmitted directly to the power drives of the gun mounts or turrets. Computers make use of complex electrical and mechanical components to perform continuous complex calculations. Some are entirely mechanical, with quantities represented by positions of shafts; others are electromechanical, with quantities represented both by positions and by voltages.

There are also fire control systems for torpedoes, rockets, and guided missiles. The systems used for rockets are basically the same as for guns, but since rockets are not precision weapons, many refinements of the gunfire control systems are not needed.

In the above systems, the fire control problem is solved prior to firing the weapon. However, since many guided missiles are directed to the target by means of radar, the problem for these missiles is handled in a different manner. After the missile is launched, a continuing solution is computed, and necessary corrections to keep the missile on a proper course are transmitted to the missile.

GUIDED-MISSILE LAUNCHING SYSTEMS

Man's ingenuity has accelerated the pace of modern warfare to the point where concepts of time and space must be revised. Supersonic

velocities have eliminated distance as a major defensive factor and reduced the effectiveness of gunfire since the time allowed to solve the counterattack problem does not permit human computation or mechanical resolution. To combat enemy supersonic planes and missiles and to increase the range of our weapons, the United States has developed many different types of guided missiles. The launching systems are that part of a ship installation designed to

deliver a missile from the magazine to the launcher ready for firing.

The overall configuration of a missile launching system is determined by the type of missile used and the class of ship on which it is installed. The missile type is the most important factor to be considered.

The types of launching systems; however, are designed for specific classes of ships. Many changes have evolved since the *USS Gyatt* was

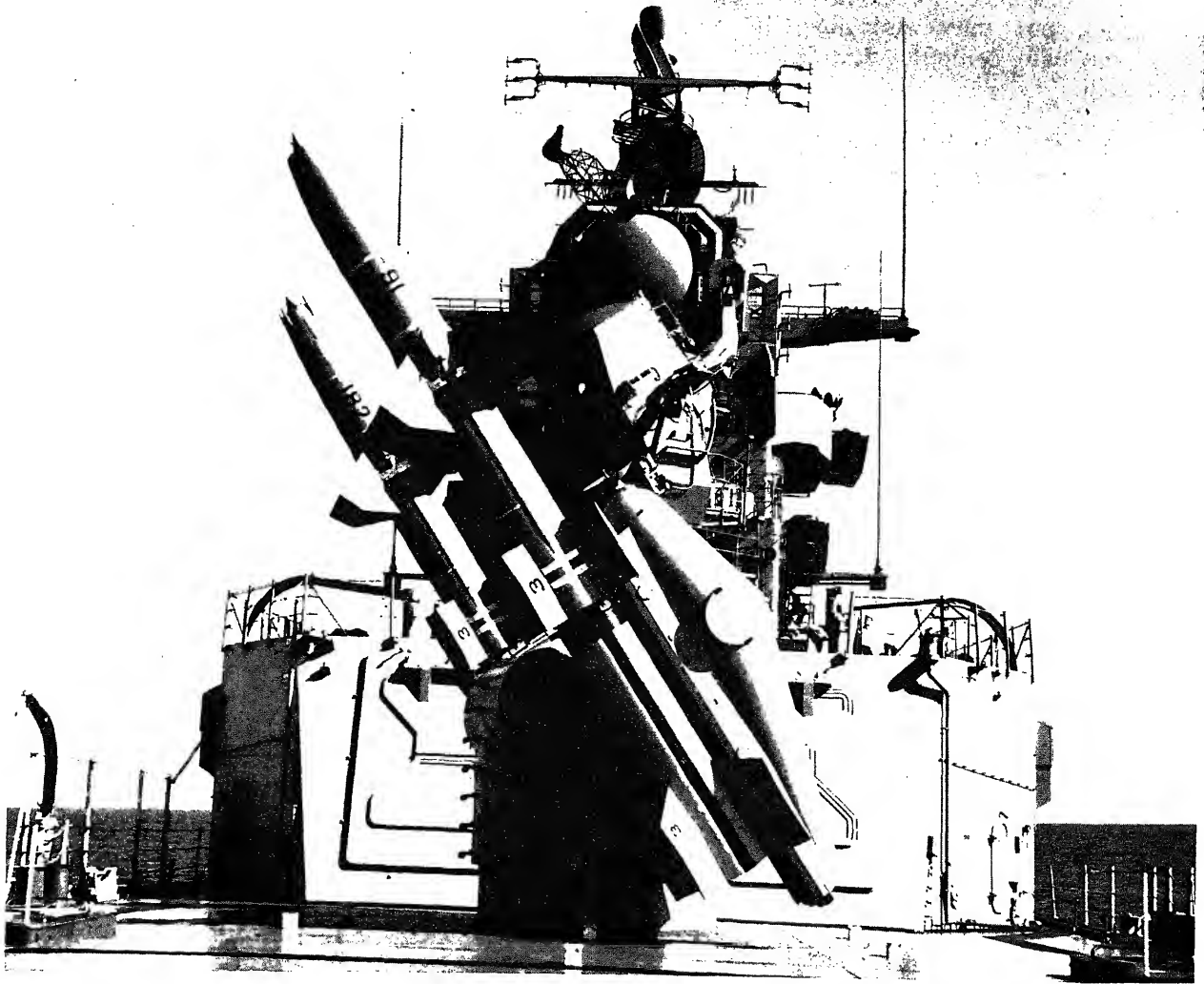


Figure 15-3.—Talos guided missiles have the speed and punch necessary to reach out and kill modern high-speed aircraft before they can endanger U.S. ships.

33.263-3

converted from a conventional DD to the first guided-missile ship.

The arrangement of the major components of a launching system that handles the same type missile will vary with the mark and mod of the launching system, and the ship on which it is installed. This is especially the case with the location of the stowage area or magazine.

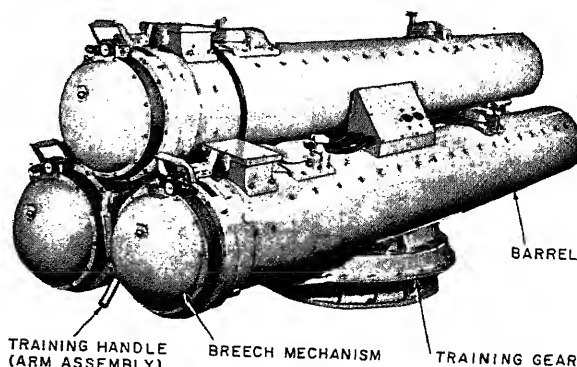
The Talos system (figure 15-3), being large, is placed only on CGs and CGNs. The much smaller Tartar system is placed on smaller ships, such as DDGs, although CGs may have Tartar as well as Talos systems aboard.

TORPEDO TUBES

Submarines fire torpedoes from fixed tubes located in the bow, both bow and stern, or amidships. Aircraft can drop torpedoes from launching racks; normally this is confined to ASW (antisubmarine warfare) operations. The following discussion on launching tubes concerns those on surface ships, primarily destroyer types.

During World War II standard destroyer-type ship armament included one or two quintuple (five-barrel) torpedo tubes. Beginning late in the war and continuing thereafter, this arrangement obsolesced. One reason for this was that the increased need for AA armament placed a premium on topside deck space. Another factor involved a change in doctrine. The concept of direct attack by conventional torpedoes against surface targets became outmoded, especially so with the advent of supersonic aircraft and guided missiles. The primary concern moved into the area of ASW and the use of homing torpedoes against submarines. At any rate, for a short time after World War II, the DD types were fitted with only one quintuple mount and new DD and DE (now designated FFs) designs had fixed tubes mounted away from the weather deck.

Above-water torpedo tubes on today's ships are either fixed or trainable. Fixed tubes are mounted, singly or in groups, within the superstructure, their muzzles extending through the sides of the deckhouse. Normal arrangement



3.129

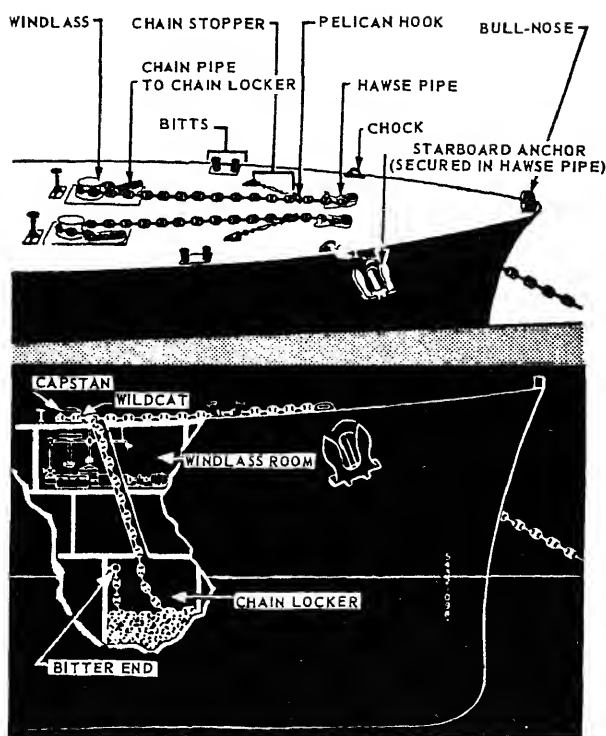
Figure 15-4.—The three-barrel unit found on most destroyers and cruisers has increased their offensive capability against the submarine.

is two tubes mounted on either side within the superstructure. Their location (housed) requires that these tubes be nontrainable.

With ASW a primary concern, the three-barrel unit shown in figure 15-4 was placed on operational ships. The barrels, fabricated of fiberglass reinforced plastic, are arranged in a triangular group with a pair below surmounted by a third above them. Although each barrel operates independently, the three are mounted on a common 190° training gear. Tubes are loaded through the breech ends of the barrels. A firing valve in the breech mechanism releases a blast of compressed air into the after end of the tube to eject the torpedo.

GROUND TACKLE

Ground tackle is the collective term for the articles of equipment used in connection with anchoring and mooring. A vessel is anchored when one anchor is used to secure it. The term "moor" is used when a ship is made fast to a mooring buoy, when it is swinging on a bight of a chain between two anchors in line, or when it is moored alongside a pier or another ship. The first lieutenant is responsible for the condition of the ground tackle on board ship, and he keeps



118.28

Figure 15-5.—Ground tackle includes all equipment used for anchoring and mooring with anchors.

a complete log of the history of every piece of this important equipment.

Anchors vary in weight from 15-pound boat anchors to the 60,000-pound anchors on the *Forrestal* and *Kennedy* class carriers. Most ships carry two main anchors forward, the starboard bower and the port bower.

Hawsepipes are tubes that lead the anchor chain from the deck on which the windlass is located (figure 15-5) down and forward through the vessel's bow plating. These openings are just abaft the stem on both sides of the ship. When a ship is underway or tied up to a pier, the anchors are housed with their shanks in the hawsepipes and their flukes outside. The anchor chain runs freely through the hawsepipe when the anchor is let go.

Anchor chain and anchors are heaved in by means of an anchor windlass. This consists of an engine—either electrohydraulic, steam, or

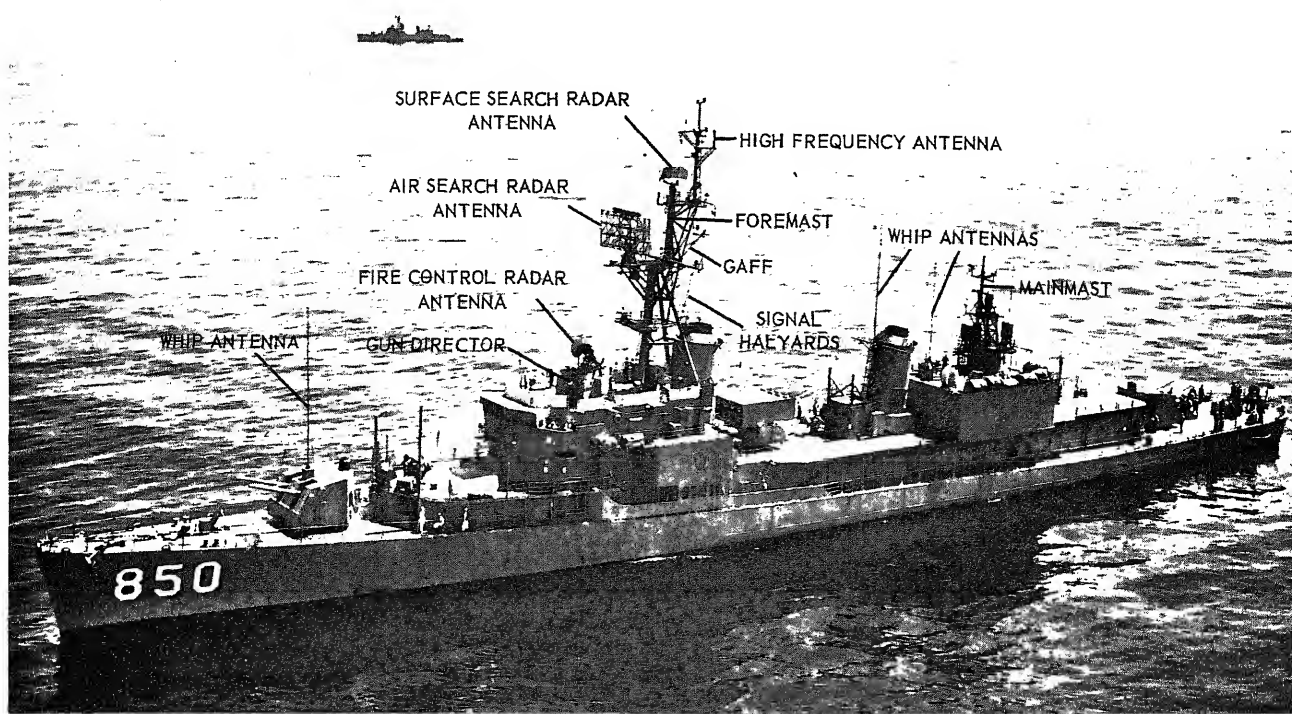
electric—which turns a shaft on which is mounted a wildcat or chain grab. The wildcat is a concave, drumlike contrivance with ridges around it, the ridges so shaped as to engage the links of the anchor chain. The wildcat is secured to the shaft for heaving the chain or paying out small amounts, but is disconnected from the shaft so that the drum turns freely when dropping the anchor. When the ship is riding at anchor, the wildcat is disconnected from the shaft, and the brake is set taut. The anchor chain is secured on deck by a short length of chain called a chain stopper, which is made fast to a permanent padeye on the forecastle. The chain stopper is fitted with a slip hook, called a pelican hook, for quick releasing of the anchor and chain. The chain passes from the wildcat through chain pipes, down into the chain locker where it is stowed.

Wire ropes or hawsers are employed when a vessel is moored alongside a pier. On the ship these lines are secured to pairs of vertical metal heads called bitts, and they pass over the ship's side through metal chocks. They are secured on the pier to vertical posts called bollards.

Smaller lines may be secured to cleats. These are fittings of wood or metal with horns, and they are located in various appropriate places on board ship. The concave barrel-like portion of a windlass is called a capstan and is used for handling hawsers.

BRIDGE ASSEMBLY

On most Navy ships there is a high prominent structure (figure 15-6) which consists of deckhouses, platforms, ladders, and spaces for enclosing gun, ship, and fire control equipment. A major part of this assembly on all ships is the bridge. The bridge is the main control point and nerve center for the whole ship. All orders and commands come from the bridge while the ship is underway. It is the station of the captain and the officer of the deck while underway. The latter at sea has an organization of considerable size to assist him in performing his duty and to feed information into this focal center. Interior communication systems enable him to keep in touch with all parts of the ship from his post.



3.97

Figure 15-6.—While underway, the bridge is the main control point and nerve center of the ship. Failure to use proper nomenclature in referring to parts of a ship or its equipment is unprofessional and may in an emergency lead to dangerous confusion.

A list of the equipment to be found on the bridge of a modern warship would include the wheel for steering the ship; the binnacle, a stand housing the magnetic compass; a gyro repeater, operated by the gyrocompass; the engine order telegraph or annunciator for transmitting orders to the engineers; switchboards for operating lights and alarms; and devices for tracking submarines and surface craft. Navigational equipment such as sextants, charts, drawing instruments, and reference books may be stowed on the bridge; but more often these are kept in a separate compartment nearby called the charthouse, in which also is located a fathometer depth sounder for measuring the depth of water by sound waves. Around the enclosed bridge there may be an open platform where lookouts, the officer of the deck, and other members of

the watch may have the best possible view of the area surrounding the ship.

SIGNAL BRIDGE

The signal bridge is an open platform located near the navigation bridge, and it is from this point that signalmen maintain visual communications with other ships and stations in the vicinity.

Visual Signaling Methods

Visual signaling is accomplished mainly by three methods: flaghoist, flashing light, and semaphore. These methods are used for short-range signaling although the range may be increased by relaying. Most of this type of

equipment is located on or near the signal bridge.

Signal flags used in flaghoist signaling are bent on (attached to) the halyards or light lines and hoisted to the yard. When not in use, these flags are carefully stowed in a flagbag, a container in which the flags are arranged alphabetically and numerically.

Signal searchlights (figure 15-7) are also located on or near the signal bridge. The searchlights have manually operated shutters and are used to transmit messages in code by alternately flashing and obscuring the light.

Yardarm blinkers are two electrically operated lights on the ends of the yardarm.



77.62

Figure 15-7.—Much of the communications between ships at sea is done by means of flashing light and alphabet flags.

They are controlled by a key on the signal bridge or other signal station. Blinkers, because of their high location, are visible over a radius of 360° and thus may give signals to several ships in formation. The searchlight, on the other hand, generally directs its light at a single ship or spot on shore.

The semaphore system of signaling uses a semaphore alphabet, the characters of which are formed by changing the positions of the arms. The arm positions alone give the message, but flags held in the hands give a greater range of visibility. Semaphore is used at sea between ships in formation. In port it is used for daytime administrative signaling between ships close enough to make this method practicable. Semaphore is quicker than flashing light, but its range is less.

Other visual signaling equipment carried by ships and used to transmit specific kinds of information are speed indicators (pennants, flags, and lights), pyrotechnics, and lights and shapes required by the rules of the road. This equipment has a more limited purpose than the standard methods of visual communication, but they afford quick and easy means of transferring information.

LIGHTS REQUIRED BY RULES OF THE ROAD.—Although ships have displayed nighttime identification lights for many years, the advent of steam increased the number of ships of various nations traveling at high speeds in the same sealanes, and made standardized rules and regulations necessary. Consequently, a conference of the maritime nations of the world drew up the International Regulations for Preventing Collisions at Sea. The regulations were then approved and made law by the various nations. A few minor changes have been made from time to time, the latest of which went into effect in 1965. Now known simply as rules of the road, the regulations are compiled by the U.S. Coast Guard into a pamphlet governing waterborne craft (including seaplanes) navigating on the high seas and on certain inland waters of the United States. These rules comprise the traffic code of the sea.

Running Lights.—A masthead (figure 15-8) light is a fixed white light usually located on a

small shelf extending forward from the foremast or on the upper part of the bridge superstructure. The range light, also white, is positioned above the masthead light on ships 150 feet in length or longer; it may be on either the foremast or the mainmast. When the range light is shown in conjunction with the masthead light, the combination is termed range lights. Although required for all power-driven ships underway (except for ships less than 65 feet

long), the white lights are not shown on sailing ships. All ships carry a green side light on the starboard side and a red light on the port side.

Special Lights.—High up on the mast are two red lights known as breakdown lights. These are shown at night when a ship is out of command.

There are other lights required by the rules of the road for special circumstances such as

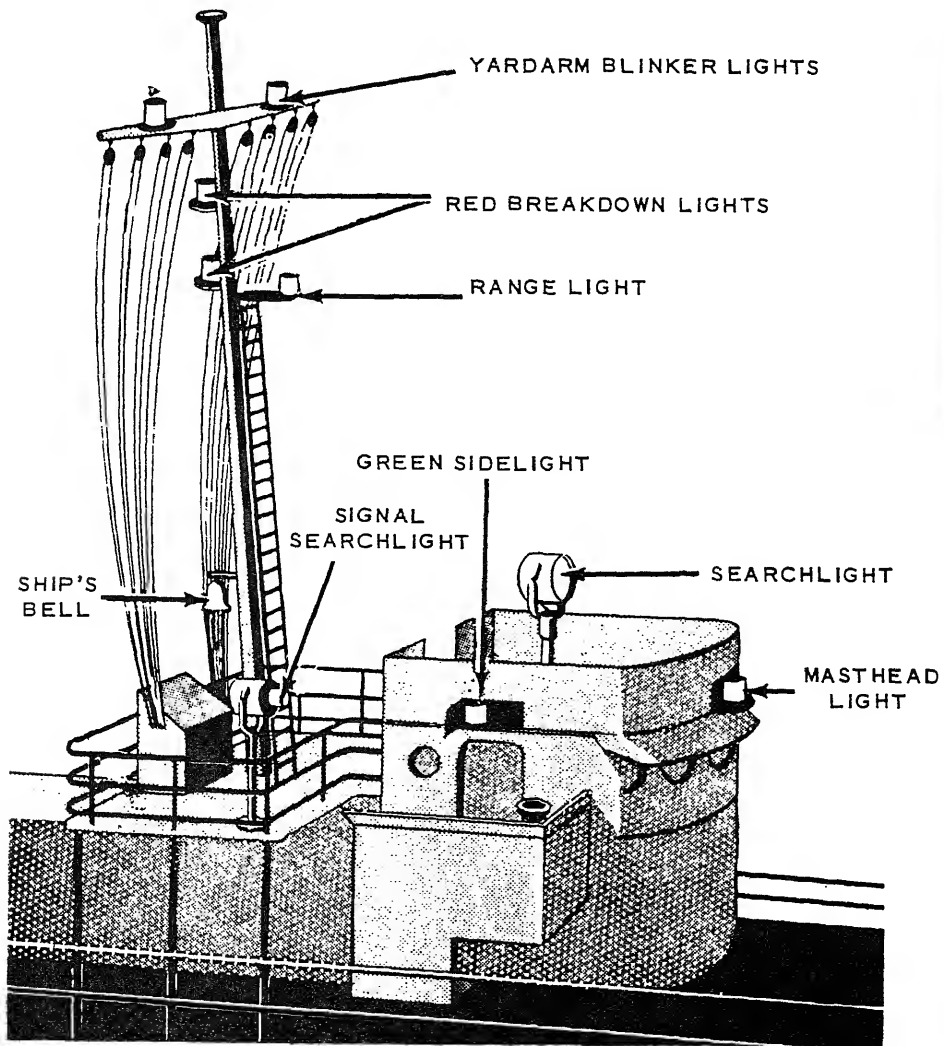


Figure 15-8.—The location, number, and color of lights aboard ship follow requirements set forth in the rules of the road, the traffic rules of the sea.

when towing or at anchor. All officers of the deck must know the meanings of these lights.

Sound Signaling Devices

Sound signaling devices, also required by the rules of the road, include the ship's bell, whistle, siren, and gong. The ship's bell, which usually is near the navigation or the signal bridge, is sounded when the ship is at anchor in fog, mist, falling snow, or heavy rain. In international waters, the gong (located in the after part of the vessel) also is sounded. The rules of the road require that the bell (and gong when appropriate) be rung rapidly for about 5 seconds at intervals of not more than a minute. If other men-of-war are present or expected, it is customary to strike the ship's call numerals each time the bell is rung.

The ship's bell is also tolled just as divine services begin. This is preceded by church call on the bugle, after which the word is passed: "The smoking lamp is out. Knock off all card games, and keep silence about the decks during divine service." In many ships, however, this use of the bell has been superseded by the public address system.

The whistle or siren is used in fog and whenever required by rules of the road when there is danger of collision due to meeting, overtaking, or misunderstanding of other ships' intentions.

MASTS, STAFFS, AND STACKS

Navy ships have either one or two masts. If there are two, the forward mast is the foremast, and the other is the mainmast. On single-masted ships the mast is well forward of amidships, usually is part of the superstructure bridge assembly, and is referred to as the foremast or simply the mast. (Nautically the word "mast" is pronounced "mist" when coupled with another word; thus "foremast" is pronounced "foremist.") Some ships are equipped with one or two "macks," combinations of masts and stacks, such as that shown in figure 14-13.

Masts are of many sizes and shapes; some are built up of heavy structural steel, and others are simply a metal or wooden pole. On larger ships a heavy mast may support an upper structure, called the foretop or maintop, which houses gun directors, rangefinders, and other equipment for the control of gunfire. On ships of all sizes, at least one mast, together with a spar running athwartships, called a yard, supports signaling devices rigged in such a position that they are clearly visible from other ships. The lighter type of mast is held rigid by standing rigging, consisting of wire rope stays running in a fore-and-aft direction and shrouds running athwartships down to the bulwarks.

The mast tops of all important combatant units are fitted with a platform on which is installed one or more radar antennas. The masts also support radio antennas. Every naval vessel in commission flies from the main truck either a commission pennant or a personal flag of a flag officer. If a commission pennant is flown, it is secured to a pigstick before being hoisted aloft; but if a personal flag is flown, the flag is bent directly on the halyards. Extending abaft the mainmast of a naval vessel is a small spar known as the gaff. From the top or peak of the gaff, the national ensign normally is flown when the ship is underway.

STAFFS AND STACKS

Small vertical spars at the bow and stern of a ship are the jackstaff and flagstaff, respectively. When a ship is at anchor or moored, it flies the jack on the jackstaff and the ensign on the flagstaff from 0800 to sunset.

The stacks on board ship are pipes utilized to expel smoke and gases from the boilers. Most ships have their stacks on the centerline, approximately amidships. The notable exception to this is the aircraft carrier, in which the stacks are located on the "island" at one side of the flight deck, or protrude from the side of the ship.

ANTENNAS

From an operational standpoint, communications and radar antennas are a vital

part of a ship's equipment. The former, for example, is aptly considered as the "voice of command." Commanders must be able to communicate to their subordinates whenever necessary, between and among ships separated by varying distances, and from ships to and from shore stations and aircraft. The ability to communicate makes possible effective command and control, ensuring that every unit in the fleet is responsive to the tactical and strategic needs and services of other units. Radar antennas are used mainly to electronically search the sea and sky to detect objects beyond visual range, as navigational aids, and for fire control purposes, although they also have other uses.

Without going into the technicalities of the subject, the function of a receiving antenna is to intercept a portion of the electromagnetic wave of energy emitted by a transmitting antenna; the function of a transmitting antenna is to convert the radiofrequency energy fed to it by a high-voltage generator into an electromagnetic wave so that the energy may be propagated to distant points. Radar antennas both transmit and receive; some communications antennas also have that capability.

For whatever purpose utilized, antennas are located so as to be susceptible to the least possible amount of interference from each other and from the ship's structure. Most of the masts,

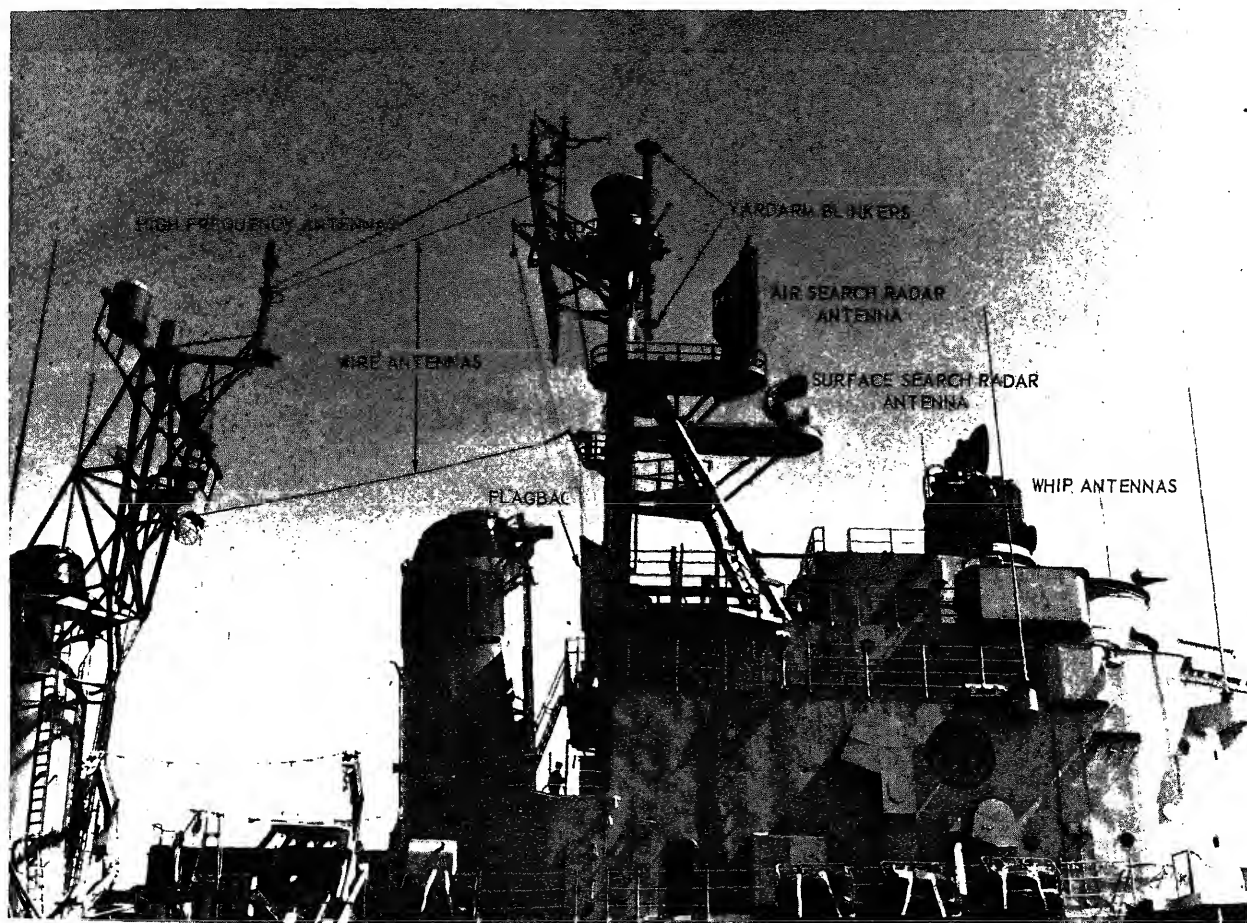


Figure 15-9.—A tripod mast can support a considerable amount of heavy equipment.

stacks, and other structures abovedeck are grounded to the ship's hull and, through the hull, to the water. To obtain adequate coverage from an antenna, it must be installed so that minimum distortion of the electromagnetic radiation pattern results from grounded structures.

Figures 15-6 and 15-9 show, among other things, some typical shipboard communication antennas, which include wires, whips, and high-frequency antennas. Wire and whip antennas are designed to operate through frequencies in the medium to high range; various types are needed to ensure the widest possible range of available frequencies consistent with available space.

Wire receiving antennas are corrosion-resistant, nonmagnetic wire ropes strung either vertically or horizontally (figure 15-9) from the yardarm or mast to outriggers,

another mast, or the superstructure. Wire antennas used for transmitting may be coaxial cable or metal tubing enclosed in rectangular metal ducts.

Whip antennas are essentially self-supporting and may be installed in many locations. They may be deck-mounted or installed in brackets on stacks or superstructure. On carriers, tilting whips are located along the edges of the flight deck (figure 15-10) so they can be lowered during flight operations. There are several types of tilting mounts used aboard submarines.

Located high in the ship and as clear as possible is the relatively small antenna employed for very-high and ultrahigh frequency communications.

Figure 15-9 illustrates construction features of a tripod foremast equipped with radar antenna platforms.

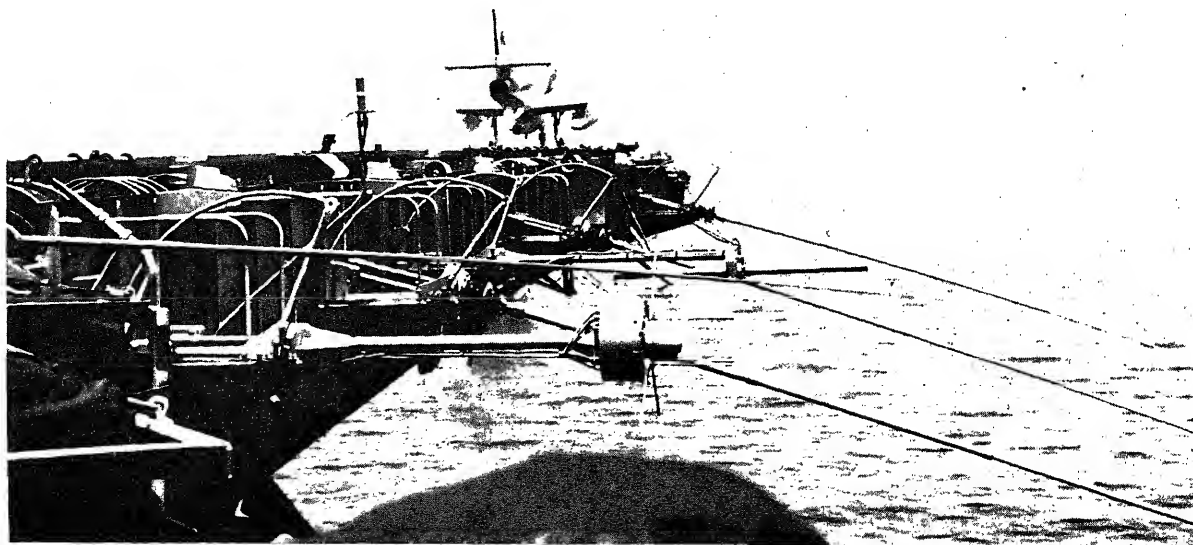


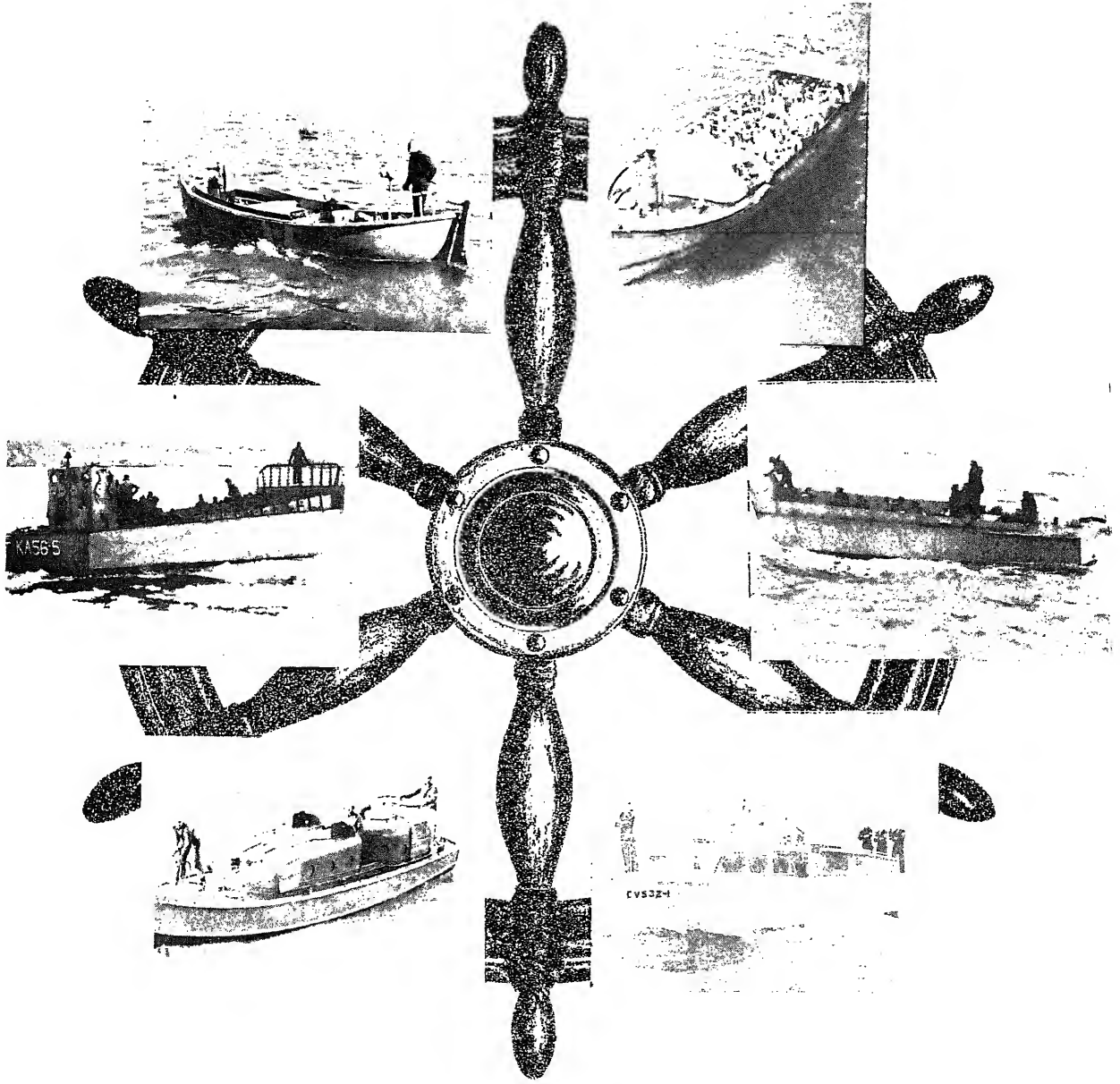
Figure 15-10.—Tilting whip antennas are typical construction features of aircraft carriers.

134.154

BOATS AND SURVIVAL EQUIPMENT

In the years immediately preceding World War II, boating needs of the Navy were, in

general, satisfied by boats of three types: motorboat, motor launch, and whaleboat. Whaleboats were of two kinds: pulling and motor. During the war many different boats were designed for special purposes, and some of



3.234.250

Figure 15-11.—Boats used in the U.S. Navy. Clockwise from the top, they are the utility boat, LCVP, personnel boat, motorboat, LCM, and motor whaleboat.

these (notably the LCVP and LCM) are still retained. Since World War II, many new designs have been tested and approved. Pulling whaleboats are no longer used aboard ship, but the extremely seaworthy motor whaleboats are still utilized as lifeboats. (See figure 15-11.)

Boats may be handled either by means of davits along a ship's sides, by cranes, or by cargo booms. They may be stowed nested one inside another on deck or in a space below decks, or they may be suspended from davits or stowed one above another between davits. Certain amphibious landing ships, as will be seen in chapter 16, are equipped with a huge well into which landing craft maneuver under their own power. These boats are stowed in the well while the ship is underway.

For years, the Navy has been experimenting with plastic boats; and several types are now in use throughout the fleet. Plastic boats require less maintenance and are easier to repair than

wooden or steel boats. Since they are lighter than conventionally constructed boats, the boat-handling equipment can also be lighter.

LIFESAVING AND SURVIVAL EQUIPMENT

Experience and experiments have shown that it is essential that persons who have abandoned ship in water below 70°F be kept entirely out of the water if they are expected to survive. Therefore, the Navy supplies each ship with enough CO₂ inflatable lifeboats (figure 15-12) to accommodate a large percentage of the crew. These boats keep the persons out of the sea and have canopies that provide shelter from the elements.

While aircraft are provided with smaller boats, the most common size found aboard ship is the 15-person boat which consists essentially of a main tube, 12 inches in diameter, and a

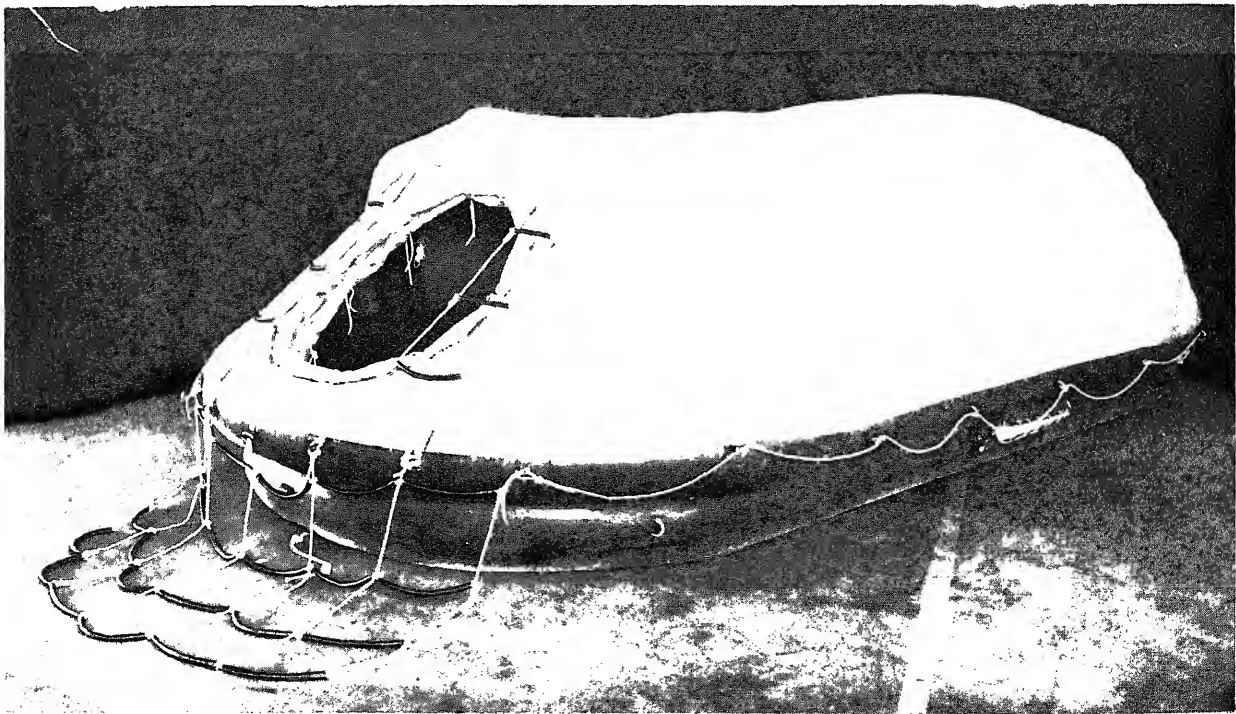


Figure 15-12.—CO₂ inflatable boat. In case the ship sinks before the CO₂ lifeboat can be launched, a hydrostatic release frees the boat and it rises to the surface.

gunwale tube, 10 inches in diameter, vulcanized to the top of the main tube. Thwarts for each tube act as stiffeners. A bow-shaped tube near each end supports the yellow-orange canopy.

CO₂ lifeboats, folded and packed in carrying cases, are usually stowed about the ship in hinged racks. Two canvas bands, one end of each secured to the hinged outboard section and the other end to a hydrostatic release, hold a boat in place. Boats may be launched by hand; or in case the ship sinks before a boat can be launched, water pressure will operate the hydrostatic release, and the boat will float to the surface.

Nylon rope boarding ladders are attached to each end of a boat, and a sea anchor is secured to the forward end. Inside the canopy are two hand pumps, a heaving line, and a boat repair kit.

Emergency equipment such as rations, canned water, desalting kits, signaling devices,

and first-aid kits are packed in watertight, neoprene-coated fabric containers and stowed in the false bottom of the carrying case.

Action reports and evidence offered by survivors of sinkings during World War II indicated that the most important piece of abandon-ship equipment is the life preserver. The jacket style is most commonly used.

The fine performance of the emergency gear furnished by the U.S. Navy in World War II was largely responsible for saving the lives of a great majority of the personnel who were forced to abandon ship. No expense was spared in research, procurement, and training, to provide the best available equipment. The basis of most experimentation with survival equipment is the personal narrative of the survivor. From his experiences the Navy learns the true value of its survival gear; from his suggestions the Navy devises new gear and modifies existing equipment.

CHAPTER 16

VESSEL TYPES AND CHARACTERISTICS

Navy ships are broadly classified as either combatants or auxiliaries. Combatants are further classified as warships, amphibious warfare ships, and mine warfare ships. Ships that provide specialized naval support are classified as auxiliary ships. Smaller vessels are classified as combatant craft and service craft. Combatant craft include patrol craft, landing craft, and riverine warfare craft. Service craft, as the name implies, perform many essential services. In this chapter, many of both the old and new vessels of each classification are described.

In the ship characteristics described in this chapter, displacements are given in full-load tonnages, beams are extreme (for aircraft carriers, width of flight decks), and drafts are maximum. Carrier accommodations include personnel attached to embarked air wings.

COMBATANT SHIPS

In general, the combatant ships in a particular class have similar characteristics because each is constructed according to the same prototype. The class designator is the name and hull number of the prototype. As of 1 July 1975, about half of the U.S. combatant types had been redesignated to eliminate confusion between such terms as "frigate" and "escort" (the latter term was discontinued), bringing the U.S. Navy's ship designation system into line with most of the other navies of the world. This system reflects more accurately the mission of these ships in modern warfare. Following is a list, according to type, of the present and former ship classes.

Aircraft Carrier

Former Class	Present Class	Hull Nos.
CVA-41	CV-41	41-43
CVA-59	CV-59	59-62
CVA-63	CV-63	63, 64
CVAN-65	CVN-65	65
CVA-67	CV-67	67
CVAN-68	CVN-68	68-70

Guided-Missile Cruiser

Former Class	Present Class	Hull Nos.
CLG-3	CG-4	4, 5
DLG-16	CG-16	16-24
DLGN-25	CGN-25	25
DLG-26	CG-26	26-34
DLGN-35	CGN-35	35
DLGN-36	CGN-36	36, 37
DLGN-38	CGN-38	38-42

Guided-Missile Destroyer

Former Class	Present Class	Hull Nos.
DLG-6	DDG-37	37-46

Guided-Missile Frigate

Former Class	Present Class	Hull Nos.
DEG-1	FFG-1	1-6
PF	FFG-7	7-56

Former Class	Present Class	Hull Nos.
DE-1037	FF-1037	1037, 1038
DE-1040	FF-1040	1040-1051
AGDE-1	AGFF-1	1
DE-1052	FF-1052	1052-1097

Patrol Combatant

Former Class	Present Class	Hull Nos.
(None)	PG-84	84-90
(None)	PG-92	92-101

Patrol Combatant Missile

Former Class	Present Class	Hull Nos.
PHM	PHM-1	1-30

WARSHIPS

Warships are built mainly to attack an enemy, using gunfire, missiles, torpedoes, and other weapons. Included in the warship category are—

1. Aircraft carriers
2. Battleships (none in commission)
3. Cruisers
4. Command ships (none in commission)
5. Destroyers
6. Submarines
7. Frigates
8. Patrol combatants

Aircraft Carriers

Although ships called aircraft carriers made their appearance during World War I, none had flight decks large enough to permit planes to land as well as to take off. The first vessel designed with a deck that could be used for taking off and landing was the British ship *Argus*, completed in September 1918, too late to be used in the war.

Langley, nicknamed "The Covered Wagon." The partly completed battle cruisers *USS Lexington* and *USS Saratoga* were converted and commissioned as carriers in 1927. The *USS Ranger*, completed in 1934, was our first ship originally designed as an aircraft carrier.

During World War II, *Essex* class carriers figured predominantly in carrier strikes against the enemy. Over 20 of these were built, but some did not see action as they were completed as much as a year after cessation of hostilities. The *USS Midway*, first of her class, was completed toward the close of the war, also too late for war service.

Post-World War II developments, found on all major conversions and new construction, include angled flight decks and steam catapults.

The chief function of the carrier is to carry, launch, and handle aircraft quickly and effectively. It strives to approach the enemy unseen at high speed, launch its planes for the attack, recover them, and get away before its position can be discovered. Its fighter planes, AA guns, and guided missiles aid the carrier in protecting itself from enemy air attack. Because of the flexibility of aircraft carriers demonstrated during Vietnam operations, the attack carrier has been converted to a multipurpose CV configuration. This class of carrier is capable of serving in air, surface, and antisubmarine warfare roles, depending upon the type of aircraft carried.

The aircraft carriers (CVs) have four main functions:

1. They are used as scouts to locate and observe enemy forces or to watch for hostile aircraft.
2. They launch initial long-range attacks against targets ashore and afloat.
3. They provide our ships with air protection against enemy airborne, surface, and subsurface attack.
4. They provide for sea-based antisubmarine warfare.

STRUCTURAL FACTORS.—Featured in a carrier's construction are a large flight deck; a

hangar deck for plane stowage; elevators permitting swift transfer of planes from one deck to another; extensive space for repair shops, living quarters, and operational equipment; and a powerplant that provides ship-speed necessary for her planes to take off and land. The main emphasis is on speed, seaworthiness, and plane-carrying capacity.

Below the carrier's flight deck is the hangar deck. Here are shops which make it a counterpart of the modern hangar ashore. Opening into a large compartment are the wing, engine, electronic, and metal shops. Nearby are storerooms containing parts necessary for rapid repairs to damaged planes.

On more recent carriers each aircraft squadron has an individual readyroom located

near the flight deck. Officers assemble here for a last-minute briefing prior to takeoff. To facilitate briefings, blackboards and teletypewriter conference screens are provided.

Steam catapults of various lengths enable the planes to take off in a much shorter distance than is normally required. Arresting gear and special safety barriers are used in landing aircraft on the carrier's deck.

CVs.—Present CVs include the *Midway*, *Forrestal*, *Kitty Hawk*, *Enterprise*, *John F. Kennedy*, and *Nimitz* classes. The *Hancock* (CV-19) class of carriers were launched during World War II. In general they were considerably smaller than the CVs built since that time. Their complement, for example, was about 2200



Figure 16-1.—USS America (CV-66). Attack carriers form the nucleus of U.S. surface striking forces.

compared to 4000 or more for newer ships. All ships in the class were modernized during the 1950s, receiving angled flight decks, enclosed (hurricane) bows, and higher-capacity steam catapults and arresting gear needed to handle modern aircraft. The last of this class was decommissioned in 1977.

The *Midway* class carriers (*USS Midway* (CV-41), *USS Franklin D. Roosevelt* (CV-42), and *USS Coral Sea* (CV-43)) were completed in the first 2 years after World War II, but have undergone major conversions similar to those received by the *Hancock* class. Strengthened flight decks enable ships of the *Midway* class to handle today's heavy, fast jets.

Midway Class Data

Displacement	64,000 tons
Length	977 feet
Beam	242 feet
Draft	35.5 feet
Shaft horsepower	212,000
Accommodations	4,600

The *USS Forrestal* (CV-59) was completed in October 1955. Other ships of the class are the *USS Saratoga* (CV-60), *USS Ranger* (CV-61), and *USS Independence* (CV-62). The *Forrestal* class carriers were the first to have four catapults instead of the usual two. Also introduced in *Forrestal* class is the computerized Navy Tactical Data System (NTDS) used in CIC.

Forrestal Class Data

Displacement	78,000 tons
Length	1,046 feet
Beam	258 feet
Draft	35.5 feet
Shaft horsepower	260,000
Accommodations	5,100

The *Kitty Hawk* class (*USS Kitty Hawk* (CV-63), *USS Constellation* (CV-64), and *USS America* (CV-66) (figure 16-1)) were designed



3.71

Figure 16-2.—*USS Enterprise* (CVN-65). The major asset of a nuclear-powered ship lies in its ability to steam for months without refueling, eliminating much of the need for underway logistic support.

basically along *Forrestal* class lines; the main difference is that armament consists of guided missiles rather than guns.

The nuclear-powered *USS Enterprise* (CVN-65) is the only ship in its class. Four fixed radar antennas (figure 16-2) are built into the superstructure. A new concept in search radar, employing higher powered transmitters and electronically rotated antennas, doubles normal radar range. For maximum maneuverability, a rudder is placed behind each of her four propellers. A second nuclear carrier, *USS Nimitz* (CVN-68), joined the fleet in May 1975. It was named after the late Fleet Admiral Chester W.



Figure 16-3.—USS Nimitz (CVN-68).

134.186

Nimitz. There will be four carriers in this class by 1981.

Enterprise Class Data

Displacement	89,600 tons
Length	1,102 feet
Beam	266 feet
Draft	36 feet
Shaft horsepower	280,000
Accommodations	4,900

Nuclear-powered ships have the unique ability to operate for extended periods over great distances independently of support ships. In 1964 the *USS Enterprise*, in company with the *USS Long Beach* (CGN-9) and *USS Bainbridge* (DLGN-25), made a self-sustaining 30,000-mile voyage around the world. The ships were not refueled or replenished by supplies of any kind during the entire trip.

The *USS John F. Kennedy* (CV-67), named for the 35th President of the United States, is a

modified version of *Forrestal* class carriers. Launched in May 1967, she was commissioned on 7 September 1968. Her overall height is equivalent to that of a 23-story building.

John F. Kennedy Class Data

Displacement	87,000 tons
Length	1,051 feet
Beam	257 feet
Draft	36 feet
Shaft horsepower	280,000
Accommodations	5,727

The *USS Nimitz* (CVN-68) (figure 16-3), first of four of the newest class of nuclear-powered carriers, was commissioned on 3 May 1975. The most notable improvement to the *Nimitz* over the *USS Enterprise* is its two reactors compared to eight for the *Enterprise*. Each *Nimitz* reactor can produce about four times the power of an *Enterprise* reactor.

Displacement	95,000 tons
Length	1,092 feet
Beam	252 feet
Draft	37 feet
Shaft horsepower	260,000
Accommodations	6,200

Battleships

Battleships were designed and built to accomplish two major objectives: engage and sink any and all types of enemy ships by long-range gunfire; and deliver heavy and continuous bombardment against enemy shore installations.

Prior to World War II, battleships were the principal ships of the fleet. During the war, the advent of fast carrier task forces brought about a shift in the BB's mission to that of furnishing anti-aircraft protection for those task forces. With their large-caliber guns, however, they also played a large part in support of amphibious assaults. Following the war, most were disposed of or placed in mothballs.

During the Korean action the battleship took part in shore bombardment operations. Following this, the few still active were taken out of commission. The four battleships of the *Iowa* (BB-61) class are the only remaining U.S. Navy battleships.

To reach military targets in Vietnam that were too far inland to be within range of other ships in the 7th Fleet, the *USS New Jersey* (BB-62), with the capability of hurling projectiles more than 20 miles with great accuracy, was reactivated in April 1968, to again serve in a shore bombardment and gunfire support role. With the cessation of hostilities in Vietnam, the *New Jersey* was again decommissioned and put in the inactive fleet. The battleship will be remembered in history as the most formidable warship devised in its time.

The *New Jersey's* main battery is composed of nine 16-inch guns disposed in three triple-gun turrets, two of which are forward of the bridge, the third being abaft the superstructure, as in



3.74

Figure 16-4.—In addition to the wallop contained in her nine 16-inch guns, the *USS New Jersey* also carries twenty 5-inch guns for use against surface and air targets.

figure 16-4. This arrangement permits all nine guns to be fired simultaneously on either broadside. Her secondary battery consists essentially of 5"/38 dual-purpose (surface and air) guns.

New Jersey Data

Displacement	57,950 tons
Length	888 feet
Beam	108 feet
Draft	38 feet
Shaft horsepower	212,000
Accommodations	2,365

Cruisers

Originally cruisers were conveniently grouped and designated as CLs, CAs, and CBs according to the size of their main batteries, 6-inch, 8-inch, or 12-inch, respectively. They were designed as general utility ships, capable of operating alone, in groups, or with a battle fleet. They were fast, of long range, and powerfully armed. They served as scouts, protective screens against destroyer attacks, leaders of destroyer flotillas, leaders of destroyer attacks against the enemy, antiaircraft screens, and aircraft carrier guards. They also provided support for amphibious operations.

The increasing threat of modern high-performance aircraft and guided missiles, however, require new armaments for cruisers. In order to meet this threat, a number of cruisers were converted to carry guided missiles. These will eventually be replaced by the new nuclear guided-missile cruisers that began joining the fleet in 1974.

Conventional guided-missile cruisers, like nuclear-powered CGs, carry missile launchers plus conventional armament and the most modern facilities and equipment for air control and missile and gunfire control. With striking forces they provide protection against air, surface, and subsurface threats. In amphibious operations, in addition to providing protection to the landing forces, they provide missile fire and limited gunfire against shore targets in support of ground troops.

These ships are capable of carrying out the duties originally assigned cruisers; and in addition, installation of sonar and ASW weapons plus ASW helicopters provides them with powerful antisubmarine warfare capabilities. Cruisers currently active include the CG and CGN—guided-missile cruisers.

Three of the CA and CL conversions are still active: *USS Oklahoma City* (CG-5), *USS Chicago* (CG-11), and *USS Albany* (CG-10) (figure 16-5). It is anticipated that these ships will have been replaced by 1980.

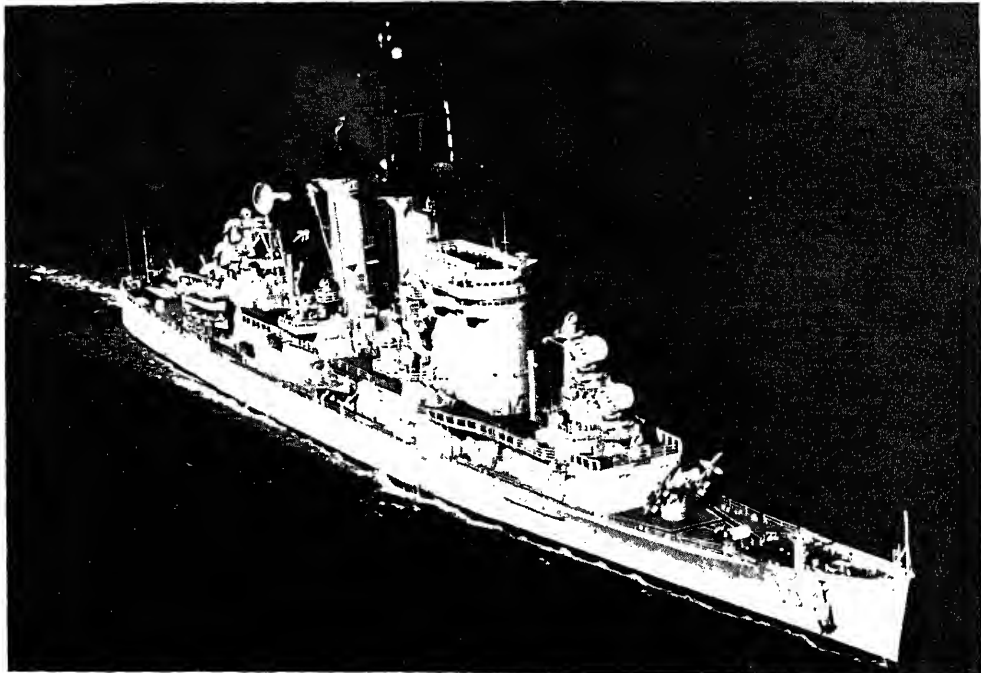


Figure 16-5. USS Albany (CG-10)

Albany Data

Displacement	18,950 tons
Length	674 feet
Beam	71 feet
Draft	33.5 feet
Shaft horsepower	120,000
Accommodations	1,272

The latest conventionally powered CGs are those in the *Belknap* (CG-26) class (figure 16-6).

Belknap Class Data

Displacement	7,940 tons
Length	547 feet
Beam	54 feet
Draft	29 feet
Shaft horsepower	85,000
Accommodations	418

The nuclear-powered prototype *USS Long Beach* (CGN-9) (figure 16-7) is our first cruiser since World War II to be designed and built as

such from the keel up. Her nuclear propulsion and guided missiles, along with the latest in electronic equipment, make her a truly modern man-of-war capable of combating surface ships, submarines, aircraft, or guided missiles.

Long Beach Data

Displacement	16,250 tons
Length	721 feet
Beam	73 feet
Draft	30 feet
Shaft horsepower	80,000
Accommodations	1,160

The *California* (CGN-36) (figure 16-8) nuclear class cruiser, followed by the *Virginia* (CGN-38) class are the latest cruisers designed to operate independently or with strike, antisubmarine, and amphibious forces. They also provide fast, extended range protection for nuclear carriers.

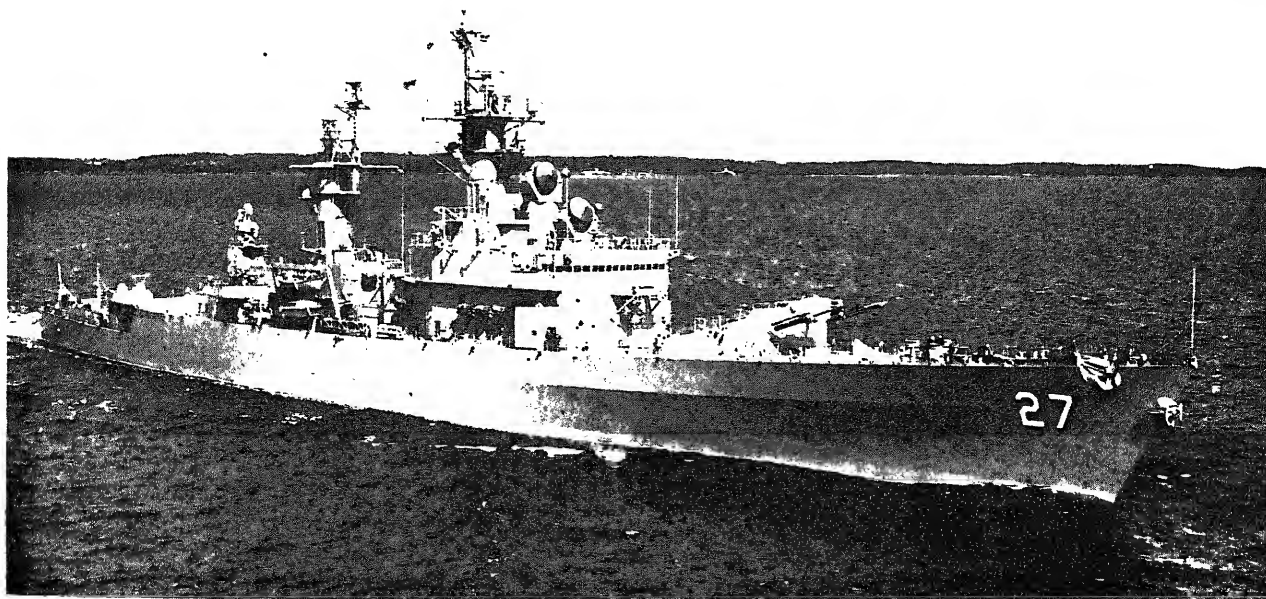


Figure 16-6.—Guided-missile cruiser USS Josephus Daniels (CG-27), a fine strike carrier escort.

Cru

grc
acc
6-in
we
op
Th
arn
aga
flo
ene
gu
am

hig
hov
ord
wei
will
gui
flee

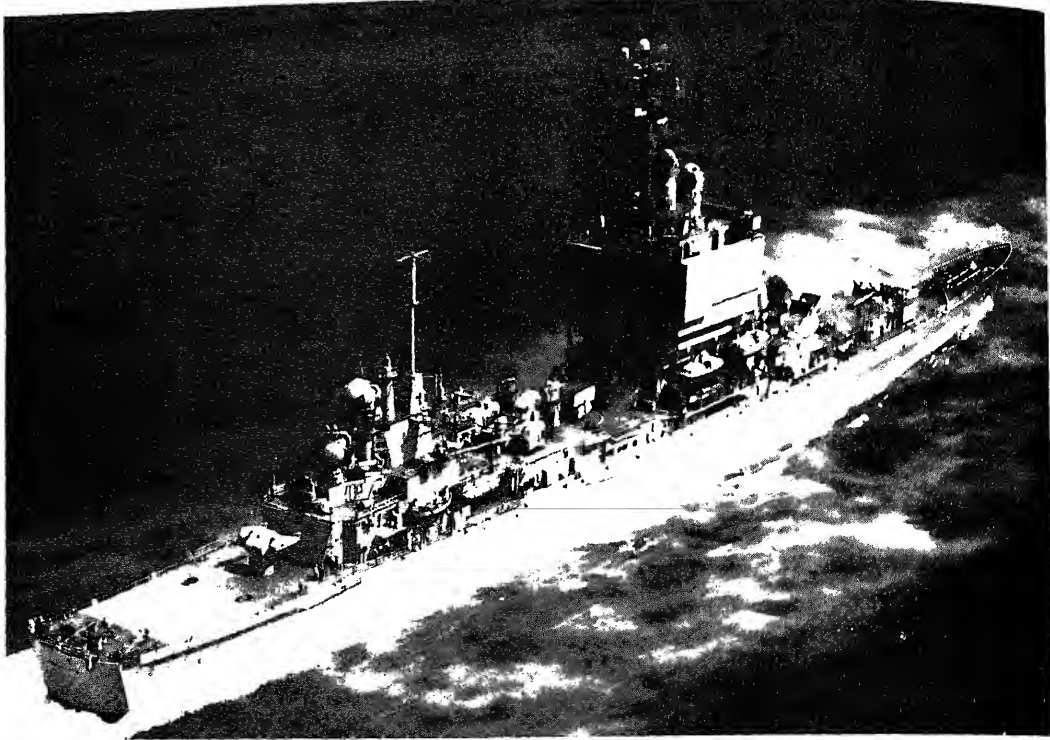


Figure 16-7.—USS Long Beach (CGN-9), a U.S. cruiser built since World War II. Terrier launchers forward and T-16 5-inch guns amidships to counter the threat of surface attack.

California Class Data

Displacement	11,100 tons
Length	596 feet
Beam	61 feet
Draft	32 feet
Shaft horsepower	70,000
Accommodations	540

Destroyers

Destroyers (DD) are multipurpose ships useful in almost any kind of naval operation. They are designed to be swiftly moving platforms for armament and submarine detection equipment. Our new destroyers incorporate the latest and best features of mobility, offense, and defense.

Originally designed to combat torpedo boats, the first destroyers appeared around 1900. By process of evolution, destroyers themselves came to carry torpedoes, and for a

time they were expressly used to deliver attacks. With the advent of the U-boat, they became submarine hunters. In World War II, destroyers also performed as radar picket ships to guard against enemy aircraft.

Destroyers are well armed, carrying different combinations of 5"/54, 5"/38, and 3"/50 caliber guns; torpedoes; and ASROC or other ASW weapons.

They are fast ships, with exceptionally powerful powerplants for their size. They have no armor for protection except against bomb and projectile fragments in vital locations. Their protection against larger vessels is their speed and maneuverability. Although the destroyer is easy to hit from the air, its unarmored hull makes it susceptible to damage even from the lighter types of bombs. Another weakness is its limited endurance. A destroyer, steaming at economical speeds, must be refueled every few days in order to maintain its percentage of fuel on board at a prudent level.

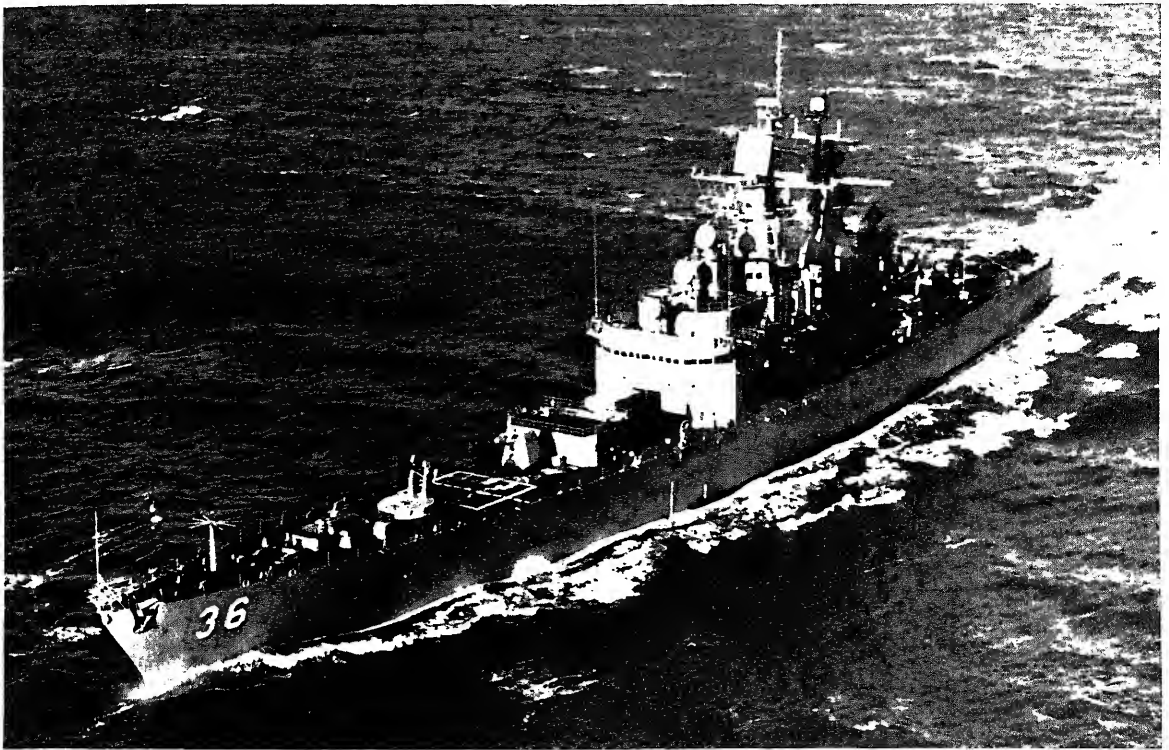


Figure 16-8.—USS California (CGN-36).

134.188

Destroyers' jobs are to operate offensively and defensively against submarines and surface ships, to defend against airborne attack, to provide gunfire support for amphibious assaults and land forces, and to a limited degree, to exercise aircraft control for ASW operations, patrol, and search and rescue missions.

The mainstays of the destroyer fleet during World War II were the *Fletcher* and *Allen M. Sumner* classes. There are no ships of the *Fletcher* class in commission today, and the majority of the remaining *Sumner* class destroyers are either scheduled for decommissioning or being used as Naval Reserve training ships.

The *Gearing* class destroyer first appeared in 1945. Seventy-four of these ships were commissioned within the next year. Most of these ships that are still in commission are operational with the Naval Reserve Fleet. Most of the destroyers in the fleet today are of the

Forrest Sherman, *Hull* (figure 16-9) or *Spruance* classes.

The *Spruance* class destroyers (figure 16-10) are the largest and most ASW capable destroyers ever built for the U.S. Navy. This class is powered by four marine gas turbine engines, each developing 20,000 shaft horsepower. Controllable pitch propellers permit a high degree of maneuverability. Comparison of *Gearing*, *Sherman*, and *Spruance* data emphasizes the growth of destroyers during post-war years.

	<u>Gearing Class Data</u>	<u>Sherman Class Data</u>	<u>Spruance Class Data</u>
Displacement	3,540 tons	4,050 tons	7,800 tons
Length	391 feet	418 feet	563 feet
Beam	41 feet	45 feet	55 feet
Draft	20 feet	22 feet	29 feet
Shaft horsepower	60,000	70,000	80,000
Accommodations	322	338	250

Guided-missile destroyers (DDGs) carry both surface missile systems and conventional weapons systems. Their missile batteries, improved antisubmarine warfare weapons, and electronic improvements give these ships much greater capabilities than the standard DD. The DDGs are used to screen fast striking forces, to escort amphibious forces and support them after their landings, and to work with other ships when attacking submarines.

DDGs of the *Charles F. Adams* class (figure 16-11) are similar to the *Forrest Sherman* class, but larger; some ships of the *Sherman* and *Hull* classes were converted to DDGs. Future DDGs will be a *Spruance* DD with a missile system installed.

Submarines

The submarine (SS) is a specialized type that has become, since the turn of the century, one of the most important weapons in naval warfare. Originally, the submarine's primary mission was

to scout and to sink enemy surface craft by means of torpedoes. Now, however, the concept has broadened; and by means of homing torpedoes or ballistic missiles, submarines can effectively combat enemy submarines or launch an attack against military targets ashore. From the crude short-range submersibles propelled by hand, the submarine has developed into a nuclear-powered, high-speed vessel which can cruise for months without refueling.

The submarine first achieved widespread use as a weapon during World War I. The diesel-electric submarines of World War II, with only a small percentage of the men, proved their worth by destroying the most tonnage. The pride instilled by the accomplishments of these submarines, a few of which are still in commission, is evident even in today's submarine force.

Since 1955, nuclear-powered submarines have opened a new era in naval warfare—the era of extended submerged operations. Today the U.S. Navy's submarine force consists of two

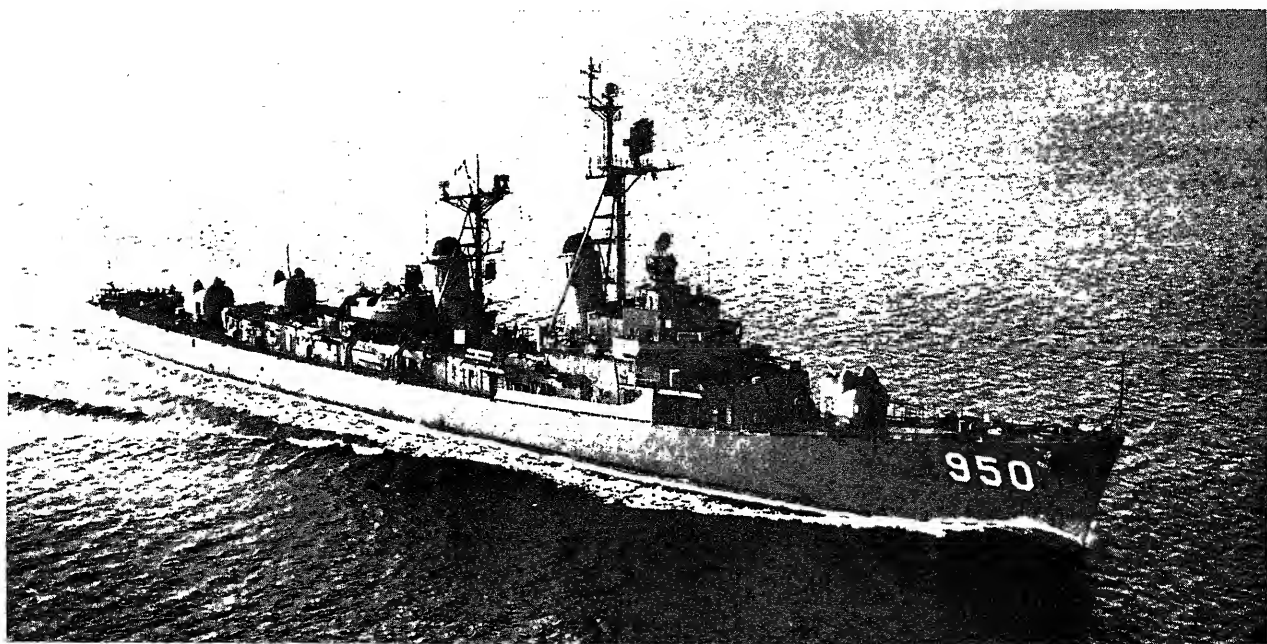


Figure 16-9.—USS Richard S. Edwards (DD-950), a Hull class destroyer.

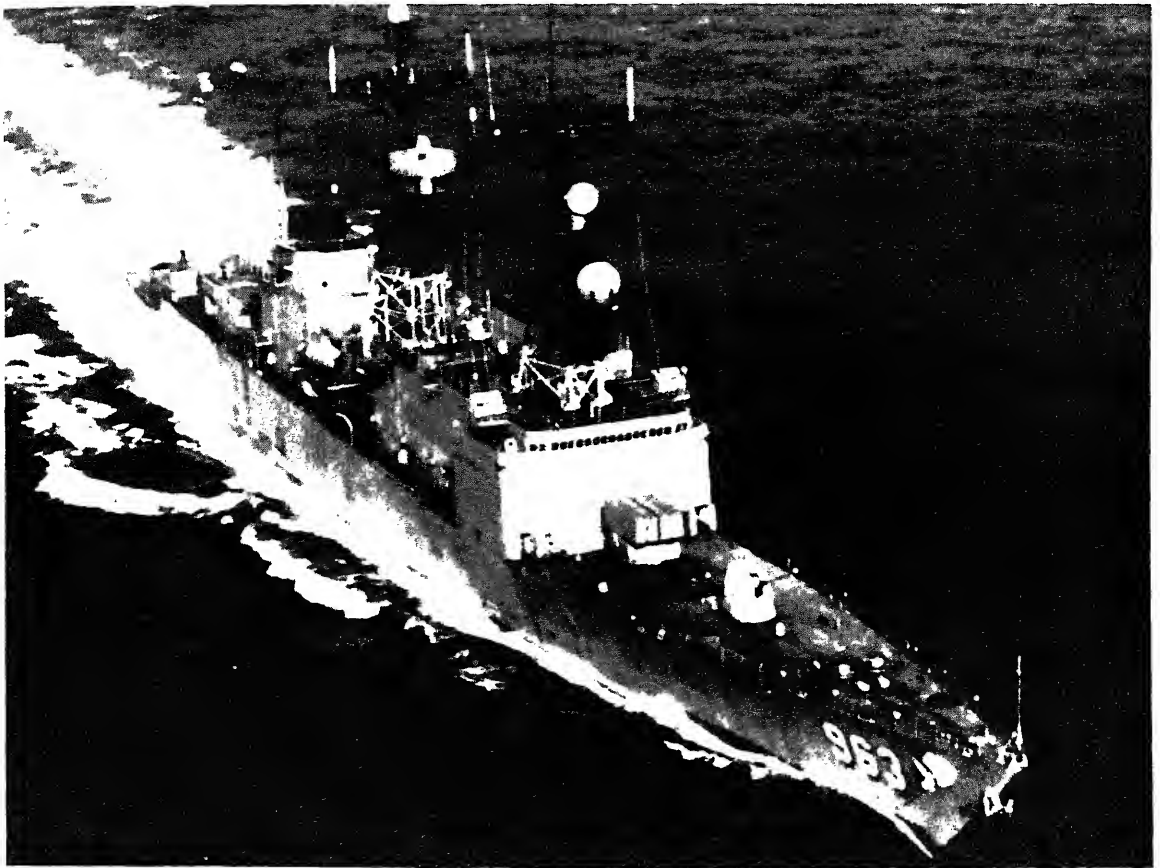


Figure 16-10.—USS Spruance (DD-963).

134.189

principal types: attack submarines (SSNs) and ballistic missile submarines (SSBNs).

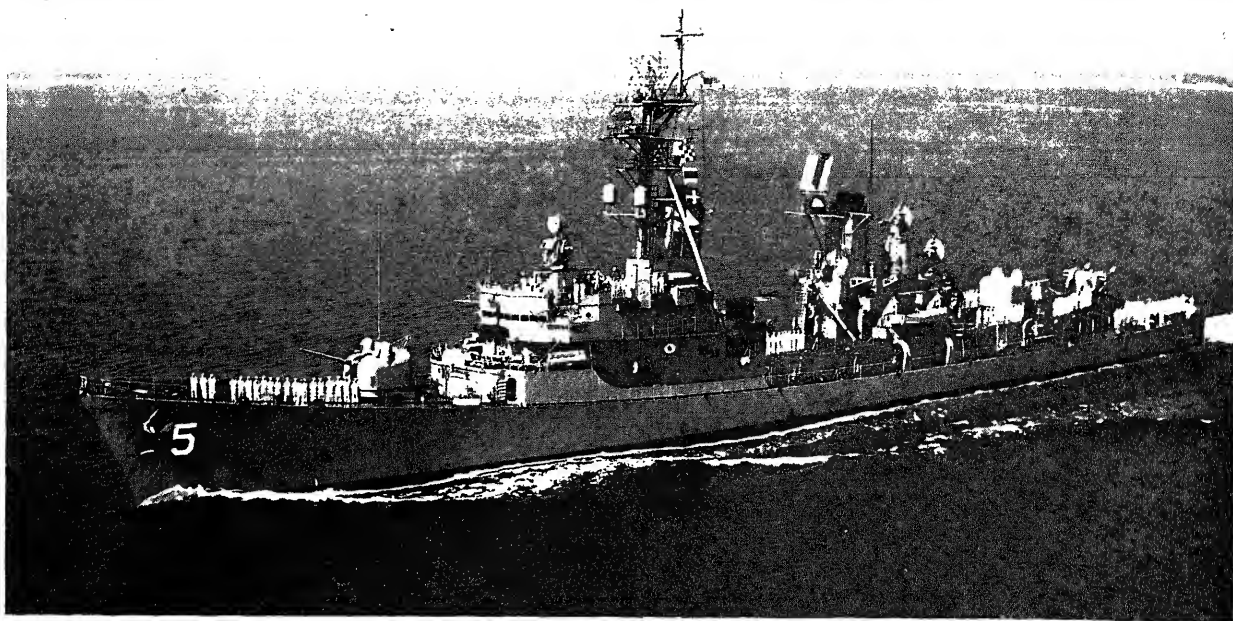
SSN Data

Displacement	4,450 tons
Length	314 feet
Beam	33 feet
Draft	29 feet
Propulsion	Nuclear

The above characteristics will vary between classes of attack submarines. Attack submarines employ the most modern sonar and weapons system in pursuit of their primary mission of keeping the sealanes open. Their armament consists of advanced acoustic torpedoes and submerged-launched missiles.

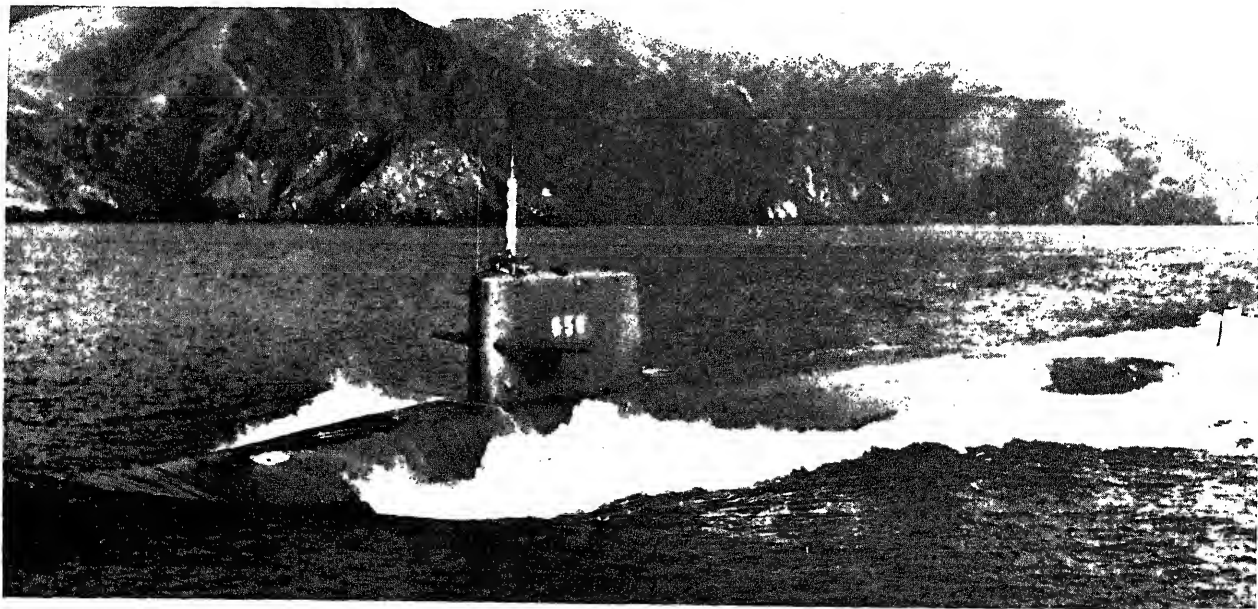
Unlike the diesel-electric submarines of World War II, the nuclear-powered submarine can operate for months at a time independently of the Earth's atmosphere. It dives deeper, runs faster, and employs better weapons, making it one of the most important forces of our modern Navy.

The ballistic missile submarines (SSBNs) (figure 16-12) are the United States' primary deterrent to an enemy attack. The SSBN incorporates the latest developments in nuclear power, sonar, and inertial navigation. Unlike airbases and missile launching sites, which can be located by the enemy with pinpoint accuracy, the SSBN can remain submerged and undetected while roaming the millions of square miles of ocean for periods of time limited only by the endurance of the crew. To counter the human



3.77

Figure 16-11.—USS Claude V. Ricketts (DDG-5) represents a most versatile class of American destroyers. She mounts Tartar launchers, 5-inch guns, ASROC, and torpedoes.



71.1

Figure 16-12.—USS Mariano Vallejo (SSBN-658). Ballistic submarines carry missiles specifically designed for submerged launch against military targets ashore.

endurance factor, SSBNs have two crews. While one is on patrol, the other is ashore undergoing refresher training in the latest war techniques, receiving medical and dental care, and taking a well-earned rest.

SSBN Data

Displacement	7,320 tons
Length	425 feet
Beam	33 feet
Draft	31 feet
Propulsion	Nuclear

The above characteristics will vary between classes. The SSBN is armed with torpedoes for self-defense and with Polaris or Poseidon missiles for destroying landbase targets. The Polaris/Poseidon missiles can be launched while the submarine is submerged (figure 16-13).

At this time the Trident class of SSBNs are under construction, they will incorporate the latest technology in submarines and weapons. The Trident will be armed with the most advanced torpedoes and long-range Trident ballistic missiles. Each submarine will carry 24 missiles that can be launched at any target on Earth. The Trident submarine will be the largest in the world, with more fire power than any other, and will add greatly to the Nation's number one deterrent to attack.

Frigates

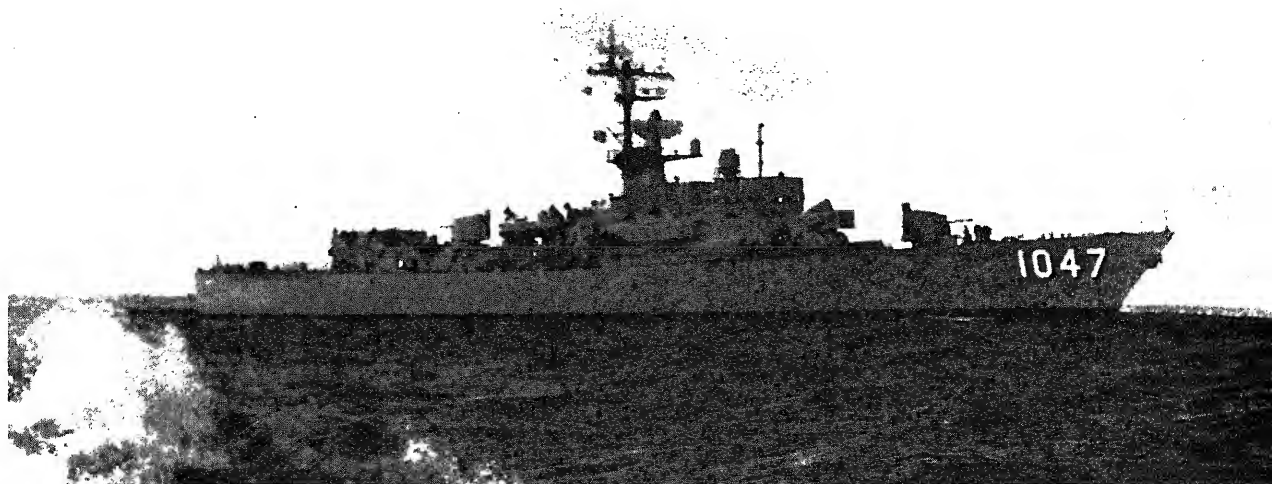
During the 1950s, it became apparent that new frigates would be needed. The DLGs and DDGs of the time were primarily anti-air warfare oriented ships and, in any event, too expensive to build in large numbers. As a result, new frigate designs were formulated to undertake specifically the problems of modern antisubmarine warfare. The first two classes (*Dealey* (FF-1006) and *Courtney* (FF-1021)) were essentially extensions of World War II types; but with the *Bronstein* (FF-1037) in 1963, a second generation of ocean escorts was born. She and her successors, the *Garcia* (FF-1040) (figure 16-14) and *Knox* (FF-1052) classes, approach or exceed the size of World War II destroyers, as can be seen in the following comparison of the *Garcia* class FF and the World War II *Fletcher* class DD.



3.78

Figure 16-13.—Launching of a Polaris. This missile is capable of carrying nuclear warheads more than 2,000 miles.

	<u>Garcia</u> Class Data	<u>Fletcher</u> Class Data
Displacement	3,403 tons	2,976 tons
Length	414 feet	376 feet
Beam	44 feet	40 feet
Draft	24 feet	20 feet
Accommodations	228	271



134.87

Figure 16-14.—USS Voge (FF-1047), a Garcia class frigate.

Frigates (FF and FFGs) are utilized mainly to screen support forces and shipping, and to operate offensively against submarines. The most important designed task of the FF is to detect and destroy submarines, either independently or as part of a coordinated ASW system. Except for the latest designs, FFs are not as large or as fast as DDs; but they are larger, faster, and more maneuverable than any ship previously designed specifically for use in antisubmarine warfare.

At the time of this writing, all of the FFGs in commission are of the *Brook* (FFG-1) class. These ships are similar to the *Garcia* class FFs except that a Tartar missile system is installed aft in lieu of a second 5-inch gun. The six ships of this class are well-equipped for ASW. They feature modern sonar detection systems, ASROC, and torpedo tubes, and are LAMPS capable. The *USS Talbot* (FFG-4) was used extensively as an experimental platform for equipment destined for a later class of FFGs.

Brook Class Data

Displacement	3,425 tons
Length	414 feet
Beam	44 feet
Draft	24

The guided-missile frigate program, authorized in 1973, has as its objective the acquisition for the 1970s-1980s time frame, a class of ships which will provide at least cost the maximum improvement to the Navy surface combatant capability to support noncarrier forces and conduct ASW operations in conjunction with other sea control forces. The first of this new class, the *O.H. Perry* (FFG-7) will have an overall length of 445 feet and displace approximately 3585 tons. The propulsion plant will utilize a single, controllable, reversible pitch propeller powered by two gas turbines. They will be equipped with LAMPS helicopters, torpedoes, missiles, and the rapid-fire 76-mm gun in addition to the Harpoon missile.

Patrol Combatants

Patrol combatants fall into two categories: patrol combatant (PG) and patrol hydrofoil missile (PHM).

The patrol combatant (figure 16-15) was developed because of the increased emphasis on counterinsurgency and unconventional warfare operations. The PG is designed for good seakeeping qualities, long endurance, and a high payload, yet is capable of high speed. It can operate in shallow coastal waters and is capable of combating coastal shipping as well as enemy PT (torpedo boat)-type craft although the PG itself is not a torpedo boat.

To achieve greatest fuel economy and thus enhance endurance time on station, the main propulsion plant of the gunboat is a combined diesel and gas (CODAG) turbine. When speeds in the maneuvering and cruising ranges are desired, the twin propellers are driven by two diesel

engines. This is the normal operating condition. Then, when high speed is needed, the diesels are declutched and the gas turbine is clutched to the propeller shafts.

Constructed of aluminum and fiberglass, the PG is 165 feet long and has a beam of 24 feet.

Pegasus (PHM-1) (figure 16-16) is the first of the new class of patrol hydrofoil missile ships. In addition to being small and mobile, the ship is capable of speeds in excess of 40 knots. It can operate in all weather conditions and can move in heavy seas with a stability found only in much larger ships. *Pegasus* displaces 231 tons, is 131 feet long and 28 feet wide, and carries a crew of 21 officers and enlisted personnel. Designed for strike, patrol, and surveillance missions, she will be equipped with an eight-tube Harpoon ship-to-ship missile launcher and a rapid-fire 76-mm gun.

AMPHIBIOUS WARFARE SHIPS

In order to accomplish successfully an amphibious operation, it is necessary to land thousands of personnel and thousands of tons of equipment, ammunition, and supplies on enemy-held shores. Various types of ships have been designed to do this and they have proved their worth many times. Demands of modern amphibious warfare, however, have made it necessary to develop new types and have caused some older designs to be discarded.

Most of the currently operational amphibious warfare ships are discussed in this section.

Tank Landing Ships

Tank landing ships (LSTs) were a World War II development and were used successfully for transporting troops, tanks, preloaded vehicles, ammunition, fuel, and all sorts of supplies. Until the commissioning of the *Newport* class (LST-1179), LSTs built since the war were of the same general design, but were larger, faster, and had certain added features which enabled them to carry out their missions more effectively.



3.269

Figure 16-15.—USS Asheville (PG-84), prototype of a new class of aluminum-hulled gunboats. Armed with a 3-inch gun forward and a 40-mm gun aft, her speed exceeds 33 knots.

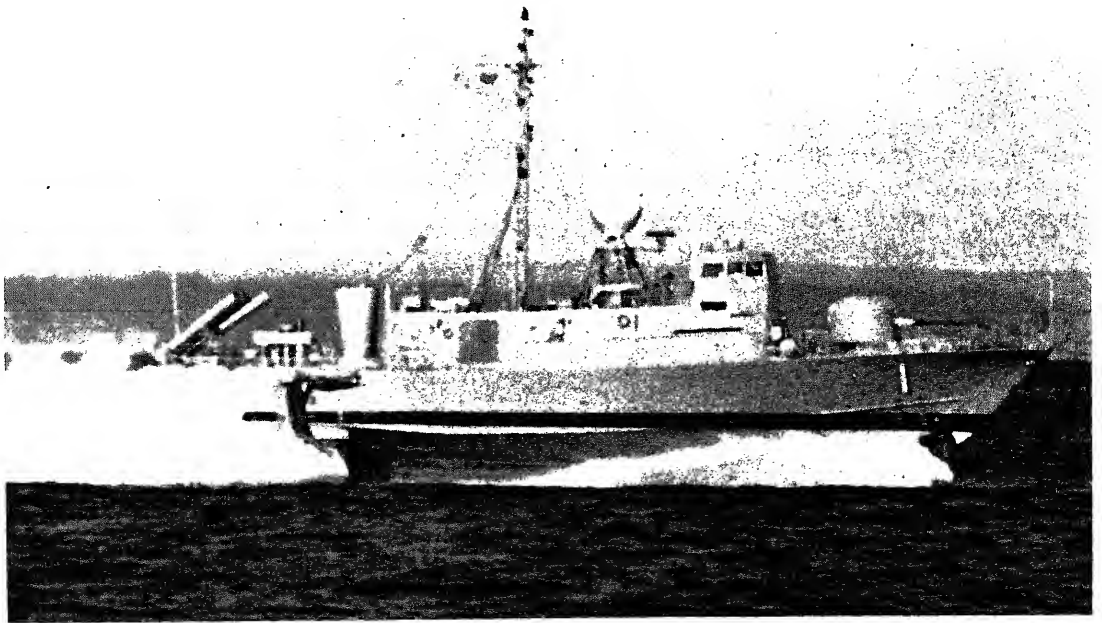


Figure 16-16.—USS Pegasus (PHM-1), patrol hydrofoil missile ship.

134.19

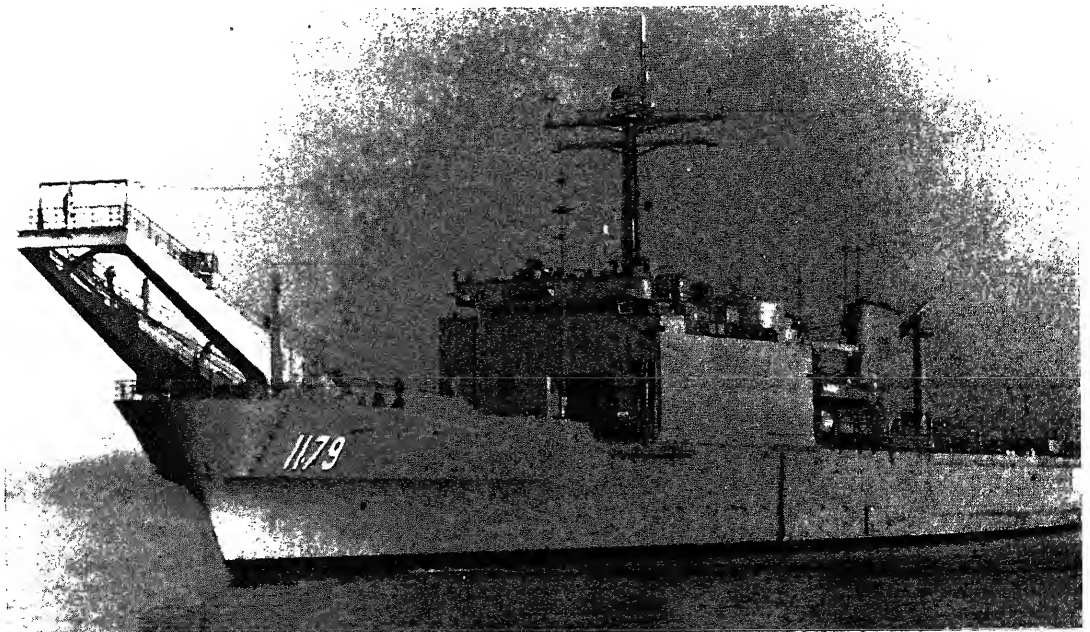


Figure 16-17.—USS Newport (LST-1179).

134.

Bow doors and bow ramp gave access to a huge hold called the tank deck. Another ramp from the main deck to the tank deck enabled vehicles to reach the main deck under their own power. Some of the added features in the post-war design included a turntable in the forward part of the tank to turn vehicles without a great deal of maneuvering and booms and winches mounted on the main deck forward of the deckhouse to facilitate handling cargo.

The first LST of a revolutionary new design was commissioned in June of 1969. It was the *USS Newport* (LST-1179) (figure 16-17). This was the first U.S. Navy combat vessel equipped with a bow thruster (side propulsion unit) to aid in maneuvering.

The *Newport* is the fastest and largest LST ever built. The new design features clipper bow, extended bow ramp vice bow doors, and a rounded bottom. The tank deck is connected to the main deck by a ramp forward of the bridge. Stern doors facilitate loading/unloading of cargo and troops. Vehicle stowage is 500 tons. The stowage area is 19,000 square feet, 5,000 more than previous LSTs.

In addition to transporting and landing amphibious vehicles, tanks, combat vehicles, and equipment in amphibious assaults, these ships

can transport and launch a pontoon causeway section in the amphibious objective area.

In the interest of comparison, data is given below for the World War II LST-542 class, of which non are in active service, and the relatively new LST-1179 class.

	<u>LST-542</u> <u>Class Data</u>	<u>LST-1179</u> <u>Class Data</u>
Displacement	4,080 tons	8,400 tons
Length	328 feet	517 feet
Beam	50 feet	68 feet
Draft	12.4 feet	15 feet
Shaft Horsepower	9,000	16,000
Accommodations	118	186
Officers/troops	18/116	20/411

Amphibious Cargo Ships

Amphibious cargo ships (LKAs) are used in amphibious assaults to transport and land assault equipment, ammunition, and supplies, but only a limited number of troops. Offloading is accomplished by ships' personnel using installed cargo-handling equipment that includes jumbo cargo booms (figure 16-18) of up to 70 tons capacity. Cargo and personnel are transported to

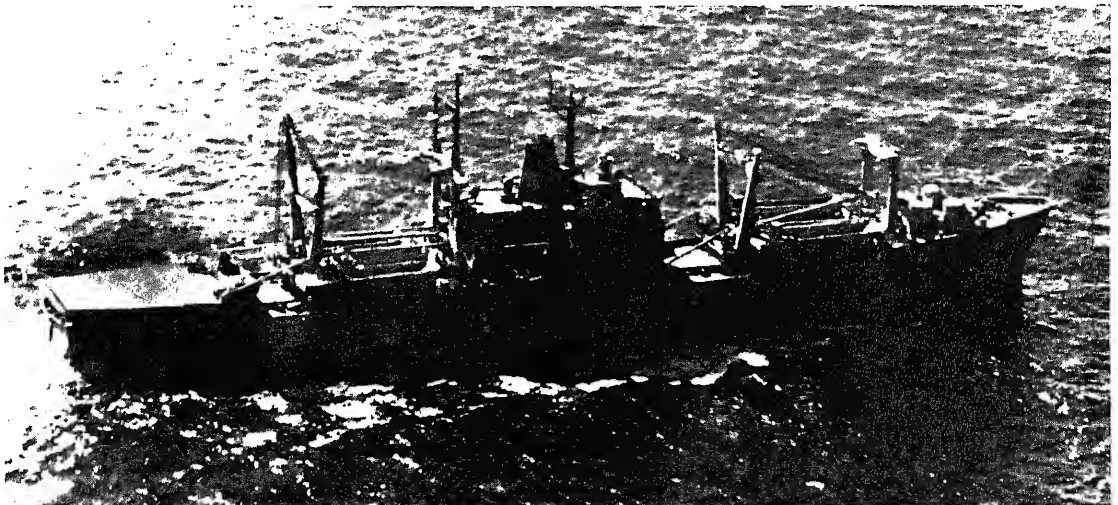


Figure 16-18—USS El Paso (LKA-117)

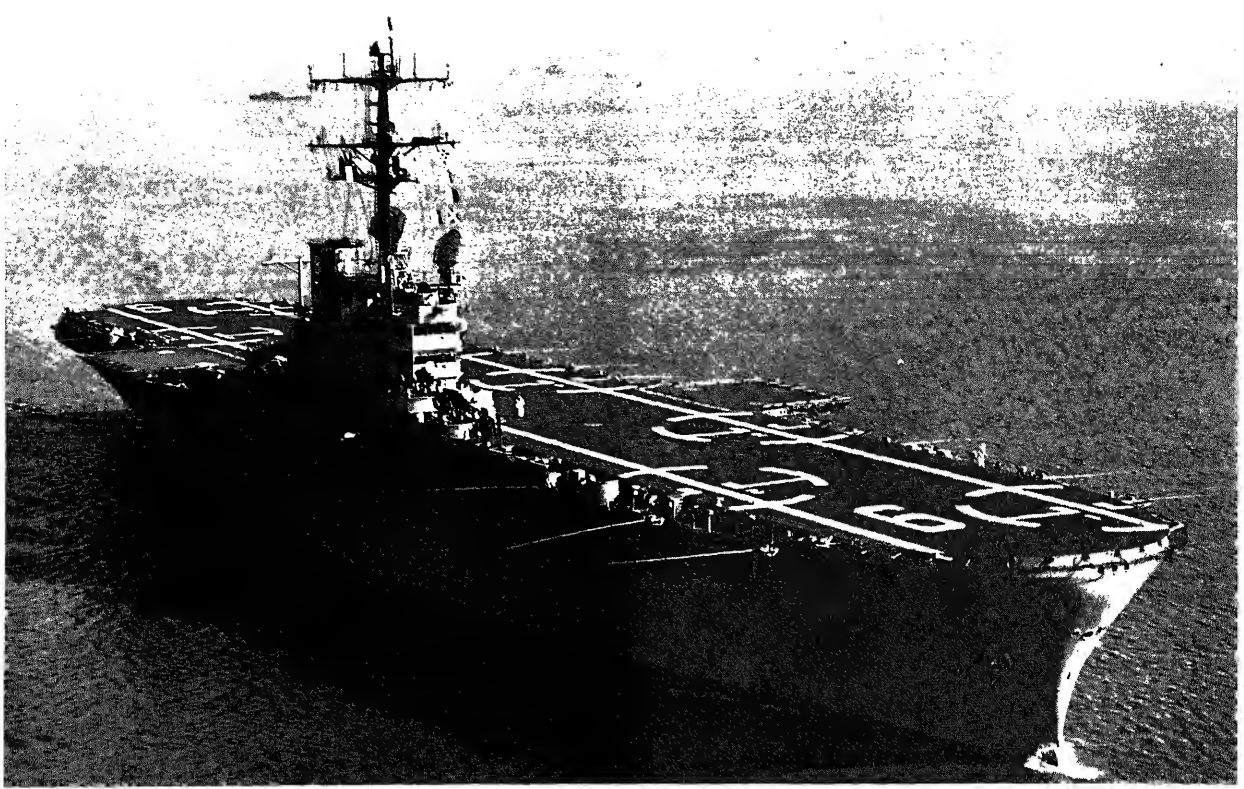


Figure 16-19.—Amphibious assault ship USS Guam (LPH-9).

3.86



Figure 16-20.—Marine CH-53 helicopter.

134.193

the beach by ships' landing craft (the *Charleston* class carries 2 LCPLs, 4 LCM-8s, and 5 LCM-6s) and other landing and amphibious craft included in the amphibious forces. Cargo capacity is over 5000 tons or about 300 vehicles.

For an amphibious assault, LKAs are combat loaded; that is, loaded in reverse order of probable need. When this is done, items troops will need first are readily available and can be offloaded first.

Charleston Class Data

Displacement	18,657 tons
Length	575 feet
Beam	82 feet
Shaft horsepower	22,000
Accommodations	391
Troops	226

Amphibious Transports

Amphibious transports (LPSs) like LKAs, transport and land troops, supplies, and equipment in amphibious assaults. While the LKA is utilized mainly for supplies and equipment, the LPA is designed primarily as a troop transport. For this reason, the LPA can transport only about half the amount of cargo as can the LKA, but she can carry more than 1400 troops as opposed to the 200-troop capacity of the LKA.

LPAs are equipped with numerous landing craft into which troops are embarked for the trip to the beach. With the advent of the LPH, LPD, and LHA, the need for this type of ship has diminished. Only the *USS Francis Marion* remains in commission on the east coast.

Francis Marion Class Data

Displacement	16,838 tons
Length	564 feet
Beam	76 feet
Draft	24 feet
Shaft horsepower	22,000
Accommodations	535
Troops	1,470

Amphibious Assault Ships

One amphibious assault ship (LPH) (figure 16-19) is designed to embark, transport, and land 1800 troops and their equipment (figure 16-20) by means of transport helicopters in conjunction with a beach assault. This vertical envelopment is more effective than previous methods of amphibious landings. The most significant feature is the ability to commit the landing force in assault without being limited to favorable beaches. It provides for establishment of a beachhead in the enemy's territory more quickly. The large concentration of men and equipment that existed on the landing beach in early stages of the amphibious assault of World War II is eliminated. With this dispersal of forces, there is less likelihood of extensive casualties.

When not employed in amphibious assaults, LPHs have the capability to assist in antisubmarine warfare.

Iwo Jima Class Data

Displacement	18,000 tons
Length	602 feet
Beam	84 feet
Draft	29 feet
Shaft horsepower	22,000
Helicopters	20 CH-46
Accommodations	1,075
Officers/troops	143/1581
Others	93/181

Another amphibious assault ship (LHA) (figure 16-21) is able to embark, deploy, and land a marine battalion landing team by helicopters, landing craft, amphibious vehicles, and combinations of these methods. It combines the features of the LPH, LPD, LKA, and LSD into a single ship. The LHA is also equipped with facilities to provide the commander of an amphibious squadron and the marine landing force commander flexibility in the exercise of their control and coordination of functions in a landing operation. For self-defense against surface and air attack, the LHA is equipped with 5-inch guns and point defense missiles.

Tarawa Class Data

Displacement	39,300 tons
Length	778 feet
Beam	106 feet
Draft	27.5 feet
Shaft horsepower	70,000
Helicopters	30
Accommodations	800
Troops	1,825

Amphibious Transport Dock

The amphibious dock transport (LPD) (figure 16-22) incorporates features of the LSD and LPH, and also is designed to combine functions of both the LPA and LKA. The system of utilizing LPAs and LKAs required that troops and most of their equipment and supplies be separated. The LPD eliminated this undesirable feature and achieved a long-sought goal of transporting troops and their equipment in the same ship. With facilities for operating eight helicopters, the LPD frequently serves as a satellite to the LPH during vertical assault operations.

Difficulties of offloading over the side are eliminated by transporting the landing craft internally and launching them through an opening in the stern, as in figure 16-23. Craft can be launched while the ship is underway or dead in the water. The deck over the well that carries the landing craft provides a platform for six large helicopters, permitting the landing of troops by air as well as by landing craft.

Austin Class Data

Displacement	16,900 tons
Length	570 feet
Beam	105 feet
Draft	21.5 feet
Shaft horsepower	24,000
Accommodations	474
Officers/troops	73/888

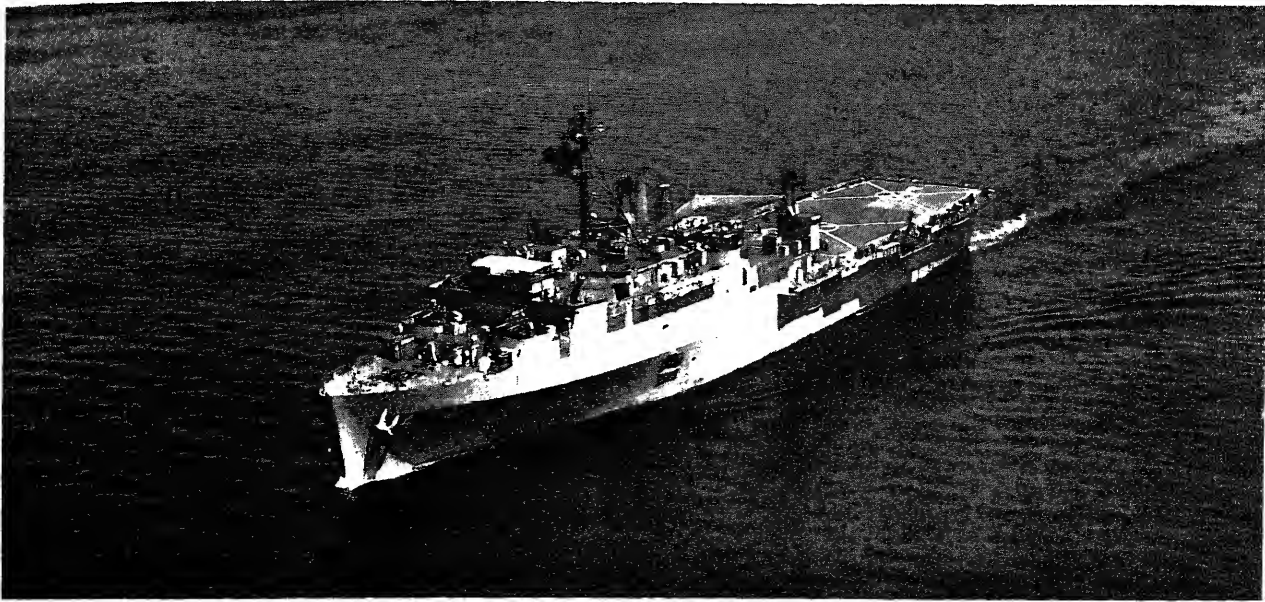
Dock Landing Ship

The dock landing ship (LSD) (figure 16-24A) can transport and launch a variety of

loaded amphibious craft and vehicles. It can render limited docking and repair services to small ships and craft and is equipped to refuel helicopters operating from the ship's helicopter landing platform. It has, between its wing walls, a well over 300 feet long and about 50 feet wide, as shown in figure 16-24B. To launch the craft, the LSD is ballasted down, the well is flooded, and the craft move out under their own power. The LSD can transport 18-LCM-6s plus the ship's allowance of four landing craft. It has one helicopter operating spot which is capable of handling a CH-53 helicopter.

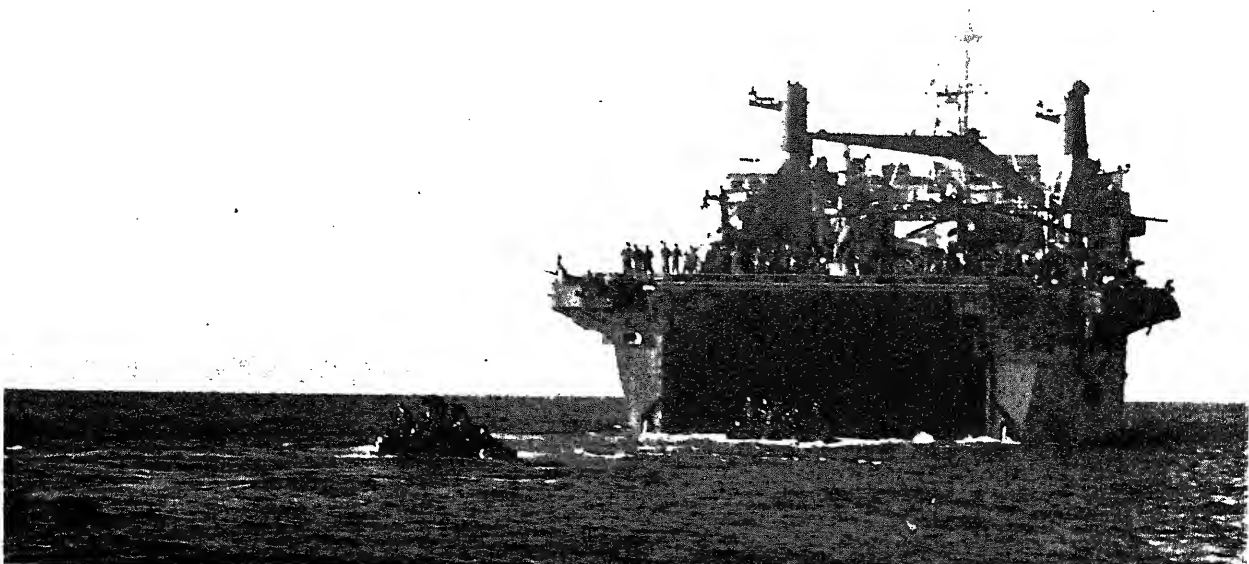


Figure 16-21.—USS Tarawa (LHA-1).



3.87

Figure 16-22.—USS Austin (LPD-4). The dock amphibious transport represents a considerable improvement over the LSD design in that it can simultaneously transport troops together with their equipment.



3.8

Figure 16-23.—Marine amtracks being launched from the partially submerged well deck of USS Ogden (LPD-5) while the ship steams at 5 knots.

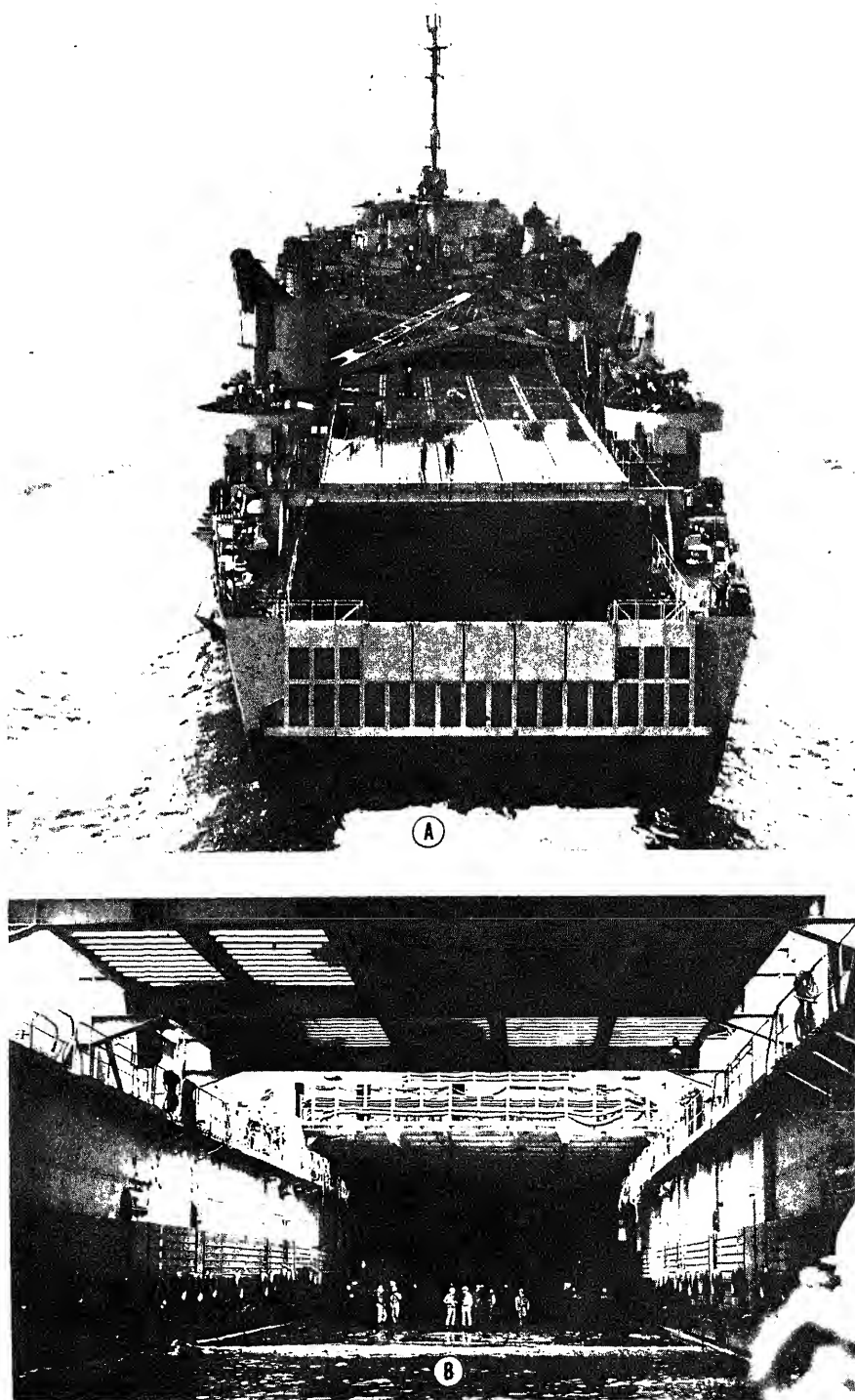


Figure 16-24.—USS Alamo (LSD-33). The huge well of this type of ship can accommodate numerous landing cr

Anchorage Class Data

Displacement	13,700 tons
Length	562 feet
Beam	84 feet
Draft	19 feet
Shaft horsepower	24,000
Accommodations	383
Troops	338

Amphibious Command Ships

An amphibious command ship (LCC) can serve simultaneously as a command ship for amphibious task force, landing force, and air support commanders during amphibious operations. It provides accommodations and command and communication facilities for the various commanders and their staffs. This ship has the most modern and capable command facilities afloat. At the time of this writing, only two ships of this type (*USS Blue Ridge* (figure

16-25) and *USS Mount Whitney*) are in commission.

Blue Ridge Class Data

Displacement	17,100 tons
Length	620 feet
Beam	108 feet
Draft	29 feet
Shaft horsepower	22,000
Accommodations	775
Troops	150

**MINE WARFARE SHIPS
AND HELICOPTERS**

All mine vessels and minesweeping helicopters of today are used for mine countermeasures. With the exception of a few minesweepers (MSOs), all mine vessels are in the Naval Reserve Fleet as are all minelaying ships. Minelaying, however, can be conducted by



Figure 16-25.—*USS Mount Whitney* (LCC-20).



Figure 16-26.—For the same amount of power, hydrofoils give substantial increase in speed.

3.88

aircraft, submarines, and in a limited way, from the decks of some of the countermeasures ships.

The helicopter has proved to be one of the most effective minesweeping vehicles for coastal operations. Although there are some characteristics that limit its effectiveness (payload, fuel capacity, crew endurance), its speed, maneuverability, safety, flexibility, and freedom from sea limitations enhance its capabilities.

COMBATANT CRAFT

Combatant craft (as opposed to combatant ships) are classified as (1) patrol craft, (2) landing craft, (3) mine countermeasures craft, and (4) riverine warfare craft. Each type is armed, but only patrol and riverine types have the mission of actively seeking out and engaging enemy forces.

PATROL CRAFT

Patrol craft include—

1. Hydrofoil patrol craft (PCH)
2. Hydrofoil patrol gunboat (PGH)
3. Fast patrol boat (PTF)

Specific missions of the various craft are, of course, varied, but in general they are designed to operate offensively on patrols in coastal and restricted waterways. Tasks include conduct of patrol and surveillance operations, interdiction of coastal shipping, and support of paramilitary operations.

The PCH and PGH (figure 16-26) are the first hydrofoil craft designed for use in combat. Constructed of aluminum, with foils of stainless steel, each can achieve a foilborne speed exceeding 40 knots.

LANDING CRAFT

Landing craft are small boats designed to transport troops and equipment from ship to shore. They are carried to the amphibious objective area aboard LKAs and LPAs or, for the larger types, aboard LSDs, LHAs, and LPDs. Most are equipped with a bow ramp to facilitate offloading.

There are several types of landing craft, of which this section describes four: LCVp, LCM, LCU, and AALC.

Vehicle/Personnel Landing Craft (LCVP)

LCVPs form the largest part of the normal boat complement of LKAs and LPAs. They are transported to the launching area nested on deck or hung at davits, as can be seen in figure 16-19. Displacing about 10 tons, they are 36 feet long with a beam of 10.5 feet. They can carry 36 troops or 4 tons of cargo.

Mechanized Landing Craft (LCM)

There are two versions of the LCM; LCM(6) and LCM(8). The number reflects the mark; for example, the full name of the LCM(6) is landing craft, mechanized, Mk VI.

The LCM(8) is a considerably larger version of the LCM(6), as seen by the following data:

	LCM(6) Data	LCM(8) Data
Displacement	62 tons	127 tons
Length	56 feet	73.6 feet
Beam	14 feet	21 feet
Cargo capacity	34 tons	60 tons
Troop capacity	120	200

Utility Landing Craft (LCU)

Utility landing craft (figure 16-27) are designed to transport very heavy vehicles, such as tanks, trucks, and bulldozers. Developed

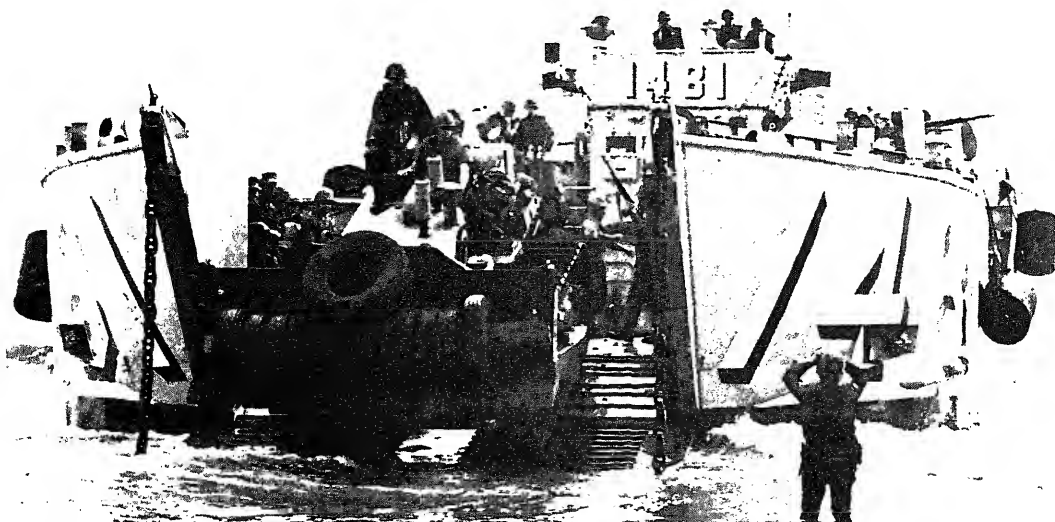


Figure 16-27.—Designed to assist in ship-to-shore movement during an amphibious assault, utility landing craft have a cargo-carrying capacity exceeding 150 tons. They can be transported in the well decks of LSDs and LPDs.

134.85

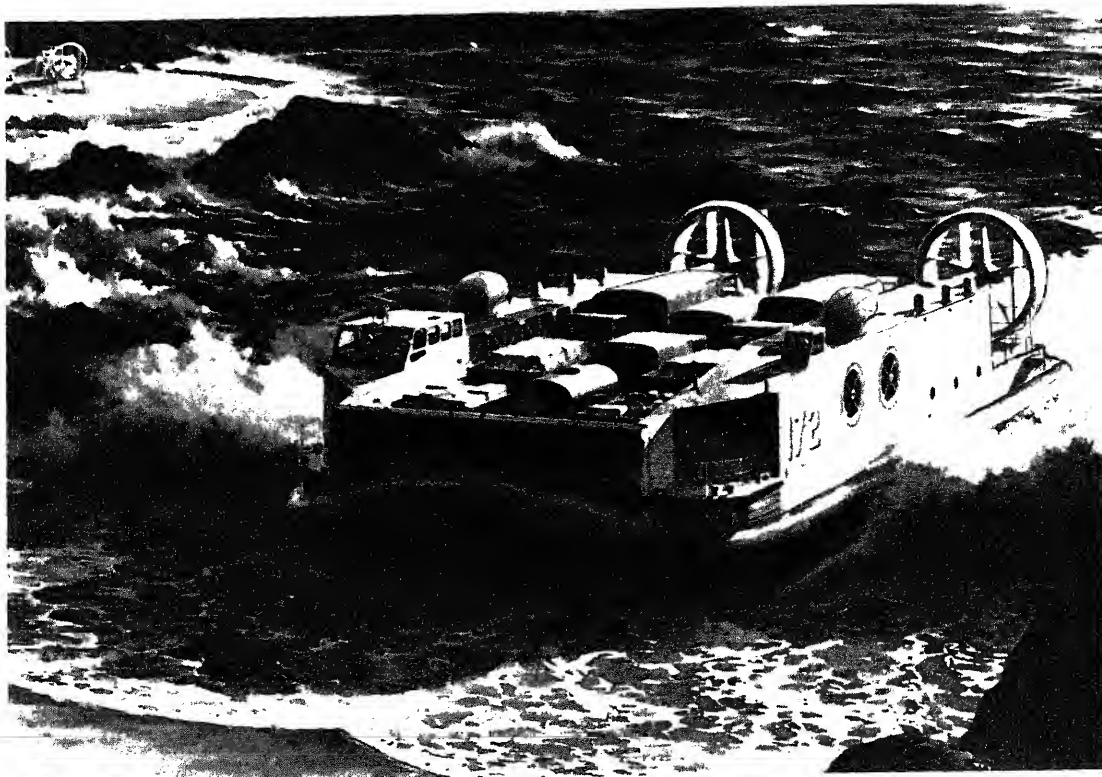


Figure 16-28.—An artist's concept of an amphibious assault landing craft air cushion vehicle.

134.196

during World War II, several hundred were built and originally designated as tank landing craft (LCT).

The 1696 class displaces 393 tons, has a length of 134.5 feet and a beam of 29 feet, can carry 180 tons of cargo or 400 troops, and provides living and berthing accommodations for 14 enlisted personnel.

Assault Landing Craft (AALC).

The AALC (figure 16-28) was constructed with the prevailing idea of preventing backlog of cargo and personnel on the beach area. With the AALC there is no need to unload cargo on the beach and then load again to take cargo inland. They are also capable of marrying with LCUs or other AALCs to form a causeway when operating with LSTs.

Powered by a gas turbine and an inboard-outboard prop engine, the craft can make 22 mph on land, with a cruising range of 400 miles. She uses a water-jet propulsion system when in the water and a tank tread system on land. She can ascend a 60% grade with a full load of 30 tons, yet is so maneuverable, she can stop and turn in the water within her own length.

RIVERINE WARFARE CRAFT

Operations inland on restricted waters are referred to as riverine warfare. For operations in the Republic of Vietnam, with its extensive inland waterway communications system, it was necessary to tailor fighting craft to the environment, and a number of small warcraft were developed to fit that need. Craft that were

utilized for riverine operations in Vietnam are discussed in chapter 23.

AUXILIARY SHIPS

The effectiveness of a fleet depends to a great extent on the quantity and type of its auxiliary ships. These ships back up the fighting forces with supporting services that keep the fleet operating because they furnish, when needed, vital supplies such as fuel, ammunition, repair parts, and food. Although not so highly publicized as combatant ships, auxiliaries fight just as hard in time of war with their kind of main batteries—services.

The type of service an auxiliary provides determines its classification. The initial letter in each instance is the letter A. An AD is a destroyer tender, while an AS is a submarine tender. AO means oiler and AOR means replenishment oiler. An AE is an ammunition (explosives) supply ship, while an AOE is a multiple-product fast combat support ship. An AF is a stores (refrigerator) ship; an AFS, a combat stores ship; an AR, a repair ship; and an AG, a miscellaneous category that includes a variety of ships. Because the AG classification is too broad to indicate a ship's mission, a suffix is added. These suffixes include, as examples, R for radar picket ship, S for survey ship, OR for oceanographic research, and TR for technical research. This section describes a number of auxiliaries now in use. Space limitations prohibit a discussion of all.

REPLENISHMENT-AT-SEA SHIPS

“Replenishment at sea” is the term applied to the transfer of fuel, munitions, supplies, and personnel from one vessel to another while ships are underway. The first significant replenishment operation ever performed at sea by the U.S. Navy was in 1899 when the Navy *Collier Marcellus*, while towing the *USS Massachusetts*, transferred coal to her. During World War II, replenishment at sea (figure 16-29) was developed to a fine art of seamanship which today is taken as a matter of course.

Replenishment is accomplished with both the replenishment ship and the ship(s) being

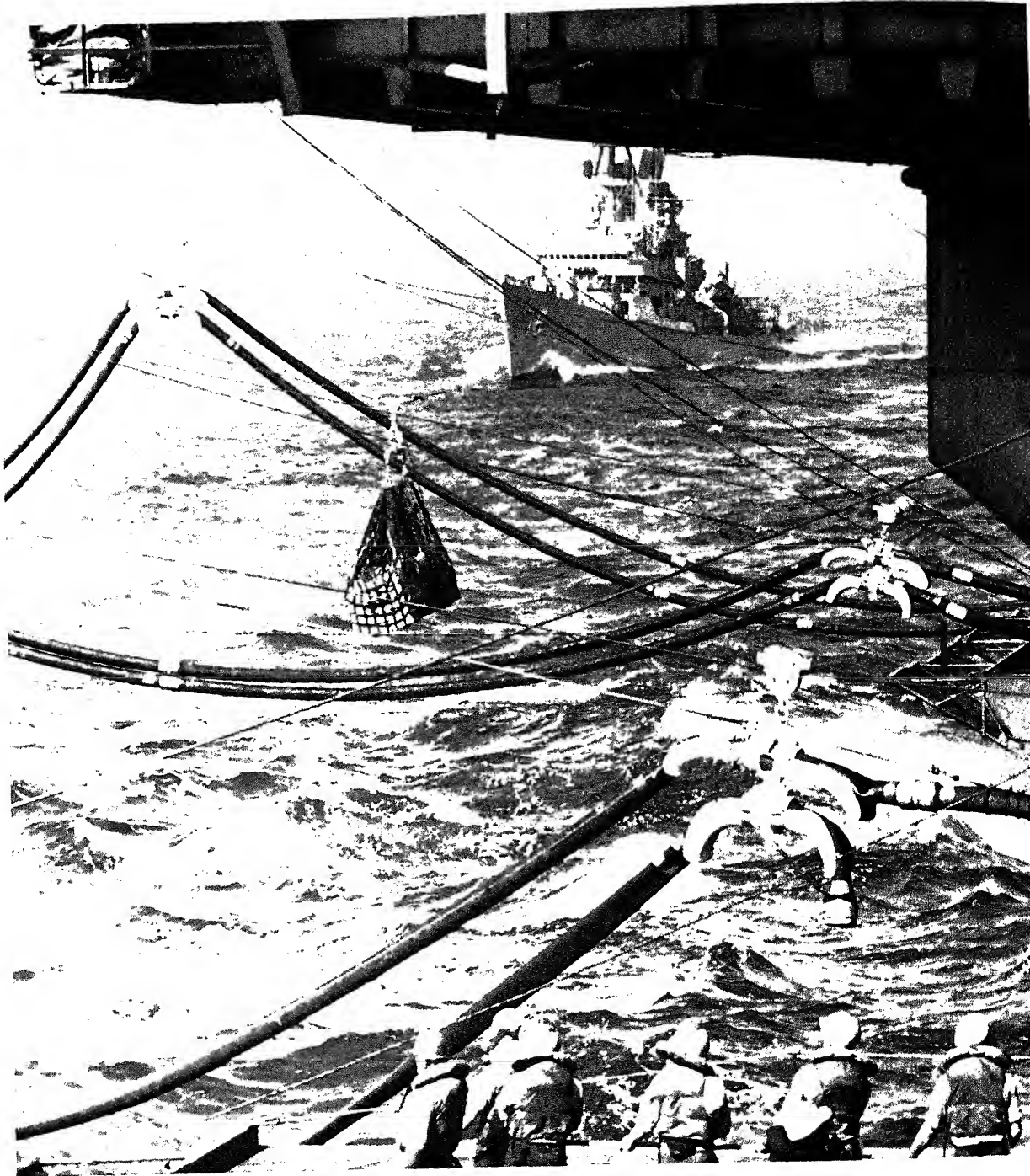
replenished steaming side by side on parallel courses at a predetermined speed. In most cases the replenishment ship maintains her course and speed and the other ships maneuver into position alongside. A separation of about 100 feet is maintained between ships, with the replenishing ship frequently serving ships both to port and starboard. Messenger lines are passed to the receiving ships which send back telephone and distance lines, and then haul over cargo-handling gear or fuel hoses by means of the messengers.

Most of the replenishment is done by ships designed for that purpose, but major combatant ships are capable of refueling smaller ships; and even the smallest ships can and do transfer light freight, mail, and personnel by means of highlines.

In addition to the standard replenishment capabilities, all recently constructed as well as many of the older auxiliary ships have helicopter platforms for the transfer of munitions, personnel, cargo, and stores by vertical replenishment. Vertical replenishment permits a receiving ship to remain on station in combat formation, thus eliminating the necessity of temporarily immobilizing itself by going alongside another ship for replenishment.

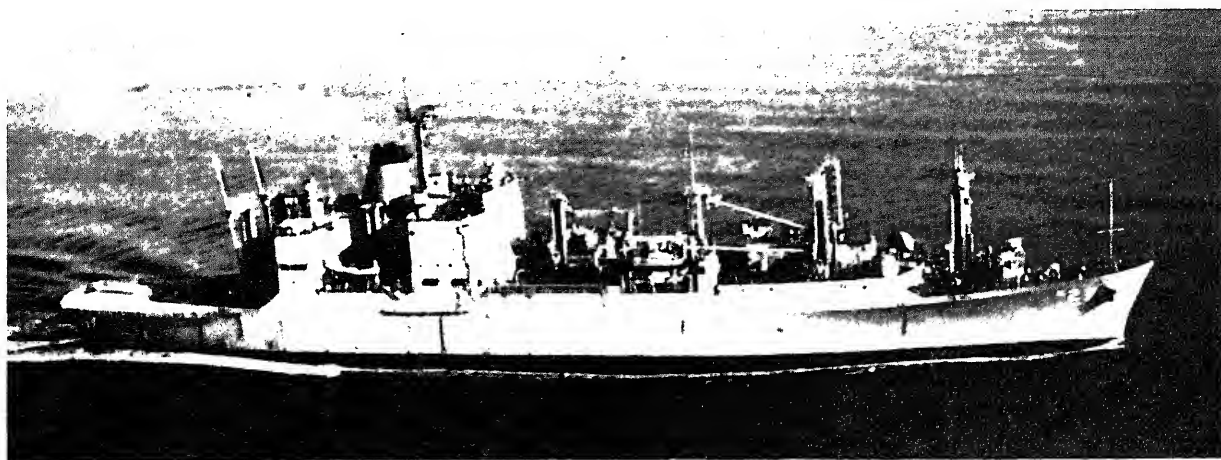
AMMUNITION SHIPS

Ammunition ships (AEs) (figure 16-30) operate with replenishment groups to deliver ammunition and missiles to the fleet at sea. Ships of the *Kilauea* class (AE-26) are 564 feet long and 81 feet wide, draw 26 feet of water, and displace 19,937 tons. At first glance, these figures sound unimpressive; but when compared to World War II AEs, they are a substantial improvement as to cargo capacity, cargo handling, and speed. Their design incorporates a mechanical handling system for more rapid loading and offloading of ammunition. This includes such equipment as dual cantilevered elevators in the holds, forklift trucks, and low-lift, power-operated transporters on the main deck for handling palletized ammunition from the elevators to the transfer stations. Universal portable metal dunnage provide maximum stowage with ready access to all types of ammunition. A tension highline system is



134

Figure 16-29.—Replenishment at sea, the “secret weapon” of World War II, enables the fleet to remain at sea and make successive strikes without returning to base for fuel, ammunition, and supplies.



134.197

Figure 16-30.—USS Butte (AE-27).

built into the design, along with new, improved electrohydraulic cargo winches for replenishment at sea. These provide for much more rapid and reliable transfers and conservation of deck space. These ships are capable of handling all types of missiles (figure 16-31) up to and including Talos. They have been modernized to include STREAM (standard tension replenishment alongside method) systems and helicopter platforms for vertical replenishment.

Oilers and Tankers

Oilers (AOs), carrying naval distillate, gasoline, and other petroleum products, operate with replenishment groups and deliver their cargo to ships at sea. Oilers, as well as ammunition ships, can service ships on both sides simultaneously. The *USS Hassayampa* (AO-145) of the *Neosho* class is shown in figure 16-32.

Neosho Class Data

Displacement	40,177 tons
Length	655 feet
Beam	86 feet
Draft	36.4 feet

Capacities

Fuel oil	98,800 barrels
JP-5	8,000 barrels
AVGAS	48,700 barrels
Accommodations	362

AO (Jumbo)

The AO (Jumbo) is a conversion of the AO that includes the installation of a new midsection in the hull. This increases the payload and provides for an improved balance of cargo fuel products to meet the more recent demands placed upon the AO by the increase in fleet requirements for jet aircraft fuel.

A constant-tension span wire system is installed at all fueling-at-sea stations. The AO is frequently required to transport fleet freight, and the constant-tension highline stations provide for an improved rate of sending and receiving cargo.

Fast Combat Support Ship

The fast combat support ship (AOE) is the largest and most powerful auxiliary ship in the Navy. Unlike other replenishment ships, the



Figure 16-31.—A Pacific Fleet AE highlines a missile to a guided-missile ship during replenishment at sea.

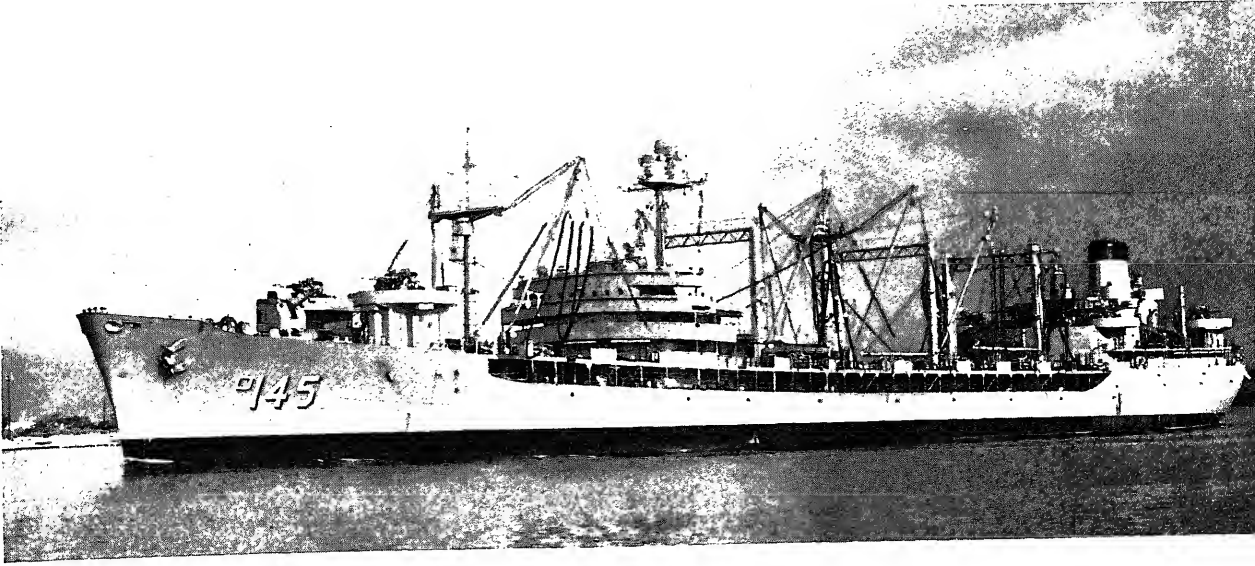
33.195

AOE is designed to operate as an integral force rather than as a unit of an underway replenishment group.

The AOE (figure 16-33) is a multiple-product ship (missiles, fuel, ammunition, and general cargo) that has a cargo-fuel capacity greater than that of our largest fleet oilers, plus a hold capacity equal to the largest ammunition ship. In addition, the

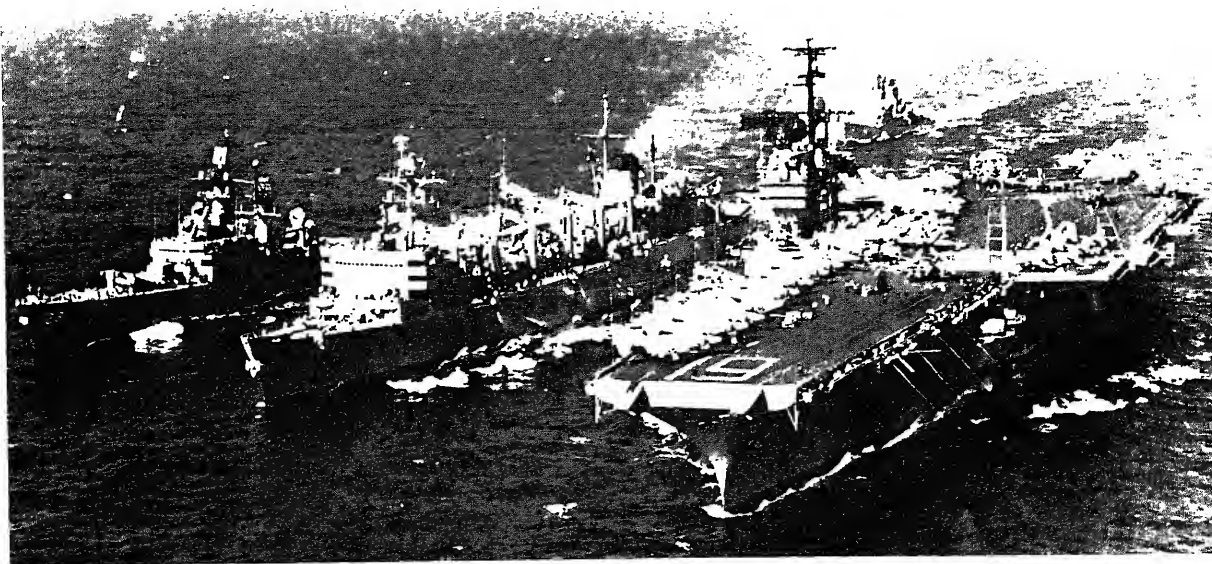
ship carries a large load of both AKS-type material and refrigerated cargo.

With a full-load displacement of more than 50,000 tons, a full-load draft of 38 feet, and a length of almost 800 feet, the AOE is larger than almost all of our World War II battleships. The shaft horsepower is 100,000, as compared to 6,000 for many of our wartime replenishment ships.



134.15

Figure 16-32.—Neosho class oilers, such as USS Hassayampa (AO-145), can carry more than 130,000 barrels of fuel oil plus 2-million gallons of aviation fuel.



134.19

Figure 16-33.—A multiple-product AOE conducting underway replenishment.

In other than speed and capacity, this ship has two major areas of improvement over other replenishment vessels: in materials handling and in replenishment at sea.

Materials, other than missiles and special weapons, are moved vertically by elevators or conveyors. Horizontal movement of general cargo and ammunition is mechanized through the use of pallet transporters and forklift trucks. Cargo helicopters are available to replenish outlying units of the force with dry cargo and ammunition.

The missile and special-weapon handling system is separate from the cargo-handling system, the units being transported by an overhead crane and bi-rail hoist. This arrangement permits a continuous flow of missiles from the cargo holds to the missile-transfer system, port or starboard. After a missile passes through one of the special missile hatches in the 01 level, no further horizontal movement of the missile is necessary prior to its transfer. As a result, the missile system does not interfere with the movement of other cargo on the 01 level. (Because the size of the AOE provides a more stable replenishment platform, the replenishment deck is at the 01 level rather than the main deck.)

The fuel hoses on the AOE are designed to permit an average ship separation of 200 feet, during replenishment, instead of the normal 100 feet. The greater distance reduces the possibility of collision and makes increased replenishment speeds feasible. There are nine replenishment stations to port and six to starboard.

Combat Stores Ship

The combat stores ship (AFS) is a new concept in design, providing within a single hull the triple logistic capability of a stores issue ship, a refrigerator ship, and an aviation supply ship.

The AFS is designed for high-speed replenishment at ship separations up to 200 feet. Built-in materials handling equipments consisting of elevators, vertical tray lift conveyors, and pallet conveyors provide for the rapid breakout of cargo. Forklift trucks and pallet trucks are utilized for horizontal

movement of cargo to the replenishment stations.

In addition to the conventional replenishment rigging, constant-tension highline transfer systems (figure 16-34) are available at all transfer stations. Large free deck areas provide space for prepositioning loads destined for receiving ships.

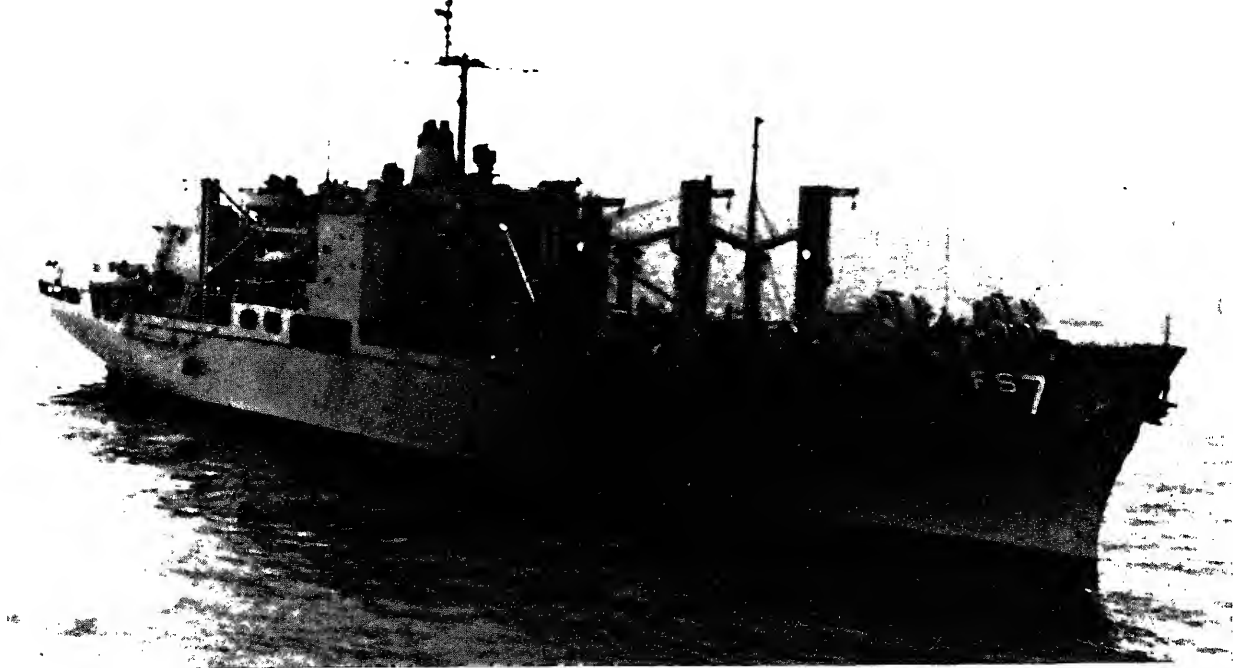
A helicopter platform and hangar for launching and servicing two helicopters adds the capability of vertical replenishment.

REPAIR SHIPS

Repair ships (ARs) perform repair and maintenance functions that are beyond the capabilities of other ships' facilities or personnel. They are floating ships with skilled workers representing a wide variety of mechanical and electrical trades. Many delicate optical and navigational instruments can be repaired or partly supplied and installed. Underwater cutting and welding can be done; engine and hull repairs performed; machine work, and electrical and electronic repairs accomplished. Aboard there are foundries, forges and machine tools of many types. There are instrument shops, carpentry shops, boat shops, and boat-engine shops. Medical and dental facilities are available, as are the services of laundry, tailor, and cobbler shops.

Under wartime conditions, the function of the repair ships is to operate in advance areas and restore the fleet to fighting trim after suffering battle or other damage. In peacetime the function may be less apparent. The work they do could be done as efficiently by a shipyard or other permanent base, but it is necessary to maintain a nucleus of ships and personnel ready for any emergency. In case of need, this group could be readily expanded as was the case during World War II. Then, too, the existence of the repair ships frees the yards from many smaller tasks, enabling them to concentrate on jobs requiring major resources. Repair ships serve as repair facilities when shipyards are not conveniently available and as training facilities for the crews of the ships they service as well as their own crews.

Formerly repair ships were intended mainly for repairing battleships and cruisers, which



134.199

Figure 16-34.—USS San Jose (AFS-7).

tenders serviced destroyers and submarines. During World War II several types of repair ships were developed for specialized types of work, some of them performing tasks previously undertaken only by naval shipyards. Repair ships added during the war are the battle-damage repair ship (ARB), internal combustion engine repair ship (ARG), landing craft repair ship (ARL), and aircraft repair ship (ARV). Most of these were modifications of the basic AR although some were converted LSTs. Of those added during the war, none are presently in service.

The *Vulcan* class AR, displacing 16,330 tons, 530 feet long with a 73-foot beam, is fairly typical of the Navy repair ship. This class provides accommodations for a ship's company of 63 officers and 1,272 enlisted personnel.

TENDERS

Destroyer tenders (ADs) and submarine tenders (ASs) perform repair work (although not

as extensively as the AR), supply repair parts, and render other services to ships they serve. Ships may moor alongside, or boats may come from the ships requesting services or advice.

Like repair ships, tenders usually have a chaplain stationed aboard. They provide medical and dental aid, and may have recreation facilities, supply provisions and weapons replenishment, and on an AS, disbursing facilities for submarine crews.

Ballistic missile submarines are tended by repair ships specially configured for the purpose, as in figure 16-35.

	Samuel Gompers (AD-37) <u>Class Data</u>	Simon Lake (AS-33) <u>Class Data</u>
Displacement	20,700 tons	21,000 tons
Length	643 feet	644 feet
Beam	85 feet	85 feet
Shaft horsepower	20,000	20,000
Accommodations	1,803	1,421

TOWING, SALVAGE AND RESCUE SHIPS

While certain types of naval auxiliary ships are designed and equipped specifically for towing, for salvage, or for rescue operations, almost any of these types may, in an emergency and to a limited extent, perform all of these operations. Among ships as versatile and as adaptable as the auxiliaries, there is bound to be an occasional overlapping of functions to meet an unexpected situation.

Oceangoing Tug

There is one major type of oceangoing tug. The ATF (fleet ocean tug) (figure 16-36) has a large cruising radius and a limited salvage capability.

Tugs are equipped with automatic towing machines, booms, and varying amounts of firefighting equipment, including fire monitors. (A fire monitor is similar in appearance to a gun and permits water to be discharged through a horizontal arc of 360° .)

In addition to hauling and towing, Navy tugs have, on occasion, patrolled, laid smokescreens, and pulled landing craft off beaches. During World War II a fleet tug returned two damaged LSTs from Normandy to the United States; another towed a warship from North Africa to the United States.

Although the tug is not a salvage vessel, most of them are capable of performing a variety of salvage and rescue operations. In such work they may operate alone or in cooperation with other ships. They have saved the cargoes of sinking merchant ships and have removed casualties from ships or from the beach.

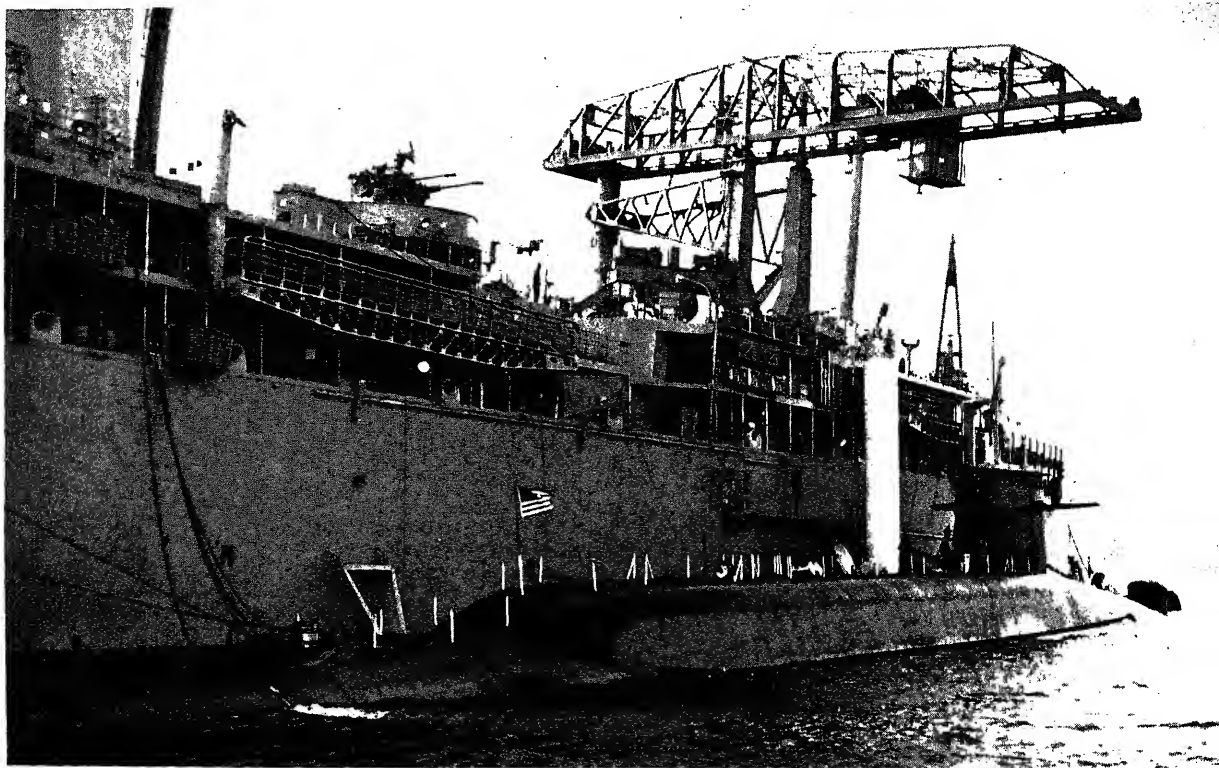


Figure 16-35.—USS Hunley (AS-31) offloading a Polaris missile from an SSBN.

During World War II, ATFs accompanied many convoys to pick up stragglers. Some were equipped with sonar and depth charges and operated with convoy screens. In peacetime they frequently assist Coast Guard ships in rescue operations. Most tugs are now operated by MSC personnel.

Salvage and Rescue Vessels

The ARS is a specialized salvage vessel. Other types of salvage ships were developed to meet the needs of World War II; for example, the ARSD is a salvage lifting vessel equipped with a derrick. This discussion takes up the ARS, ATS, and the ASR.

The Navy's modern salvage ships are steel constructed and are designed for offshore work. Their cruising range at an economical speed is

about 14,000 miles. As part of the ships' operating crews, each ship has 2 officers and 21 enlisted personnel who are specially trained in salvage work.

Qualified divers are assigned to these ships, and in wartime this hazardous work is often undertaken under combat conditions. Sunken ships may have to be cut up, moved, or refloated. Divers may have to salvage material from sunken U.S. ships or the enemy's. Stores or machinery may be salvaged or valuable documents may be taken from ships that are under water. The ARS is equipped for normal diving operations in depths to about 200 feet.

A few data on the *USS Bolster* (ARS-38) will furnish a general idea of the salvage ships of the auxiliary fleet. Its length is 214 feet, beam 44 feet, draft 15 feet, and displacement is 2,040 tons. She has a shaft horsepower of 2,440.

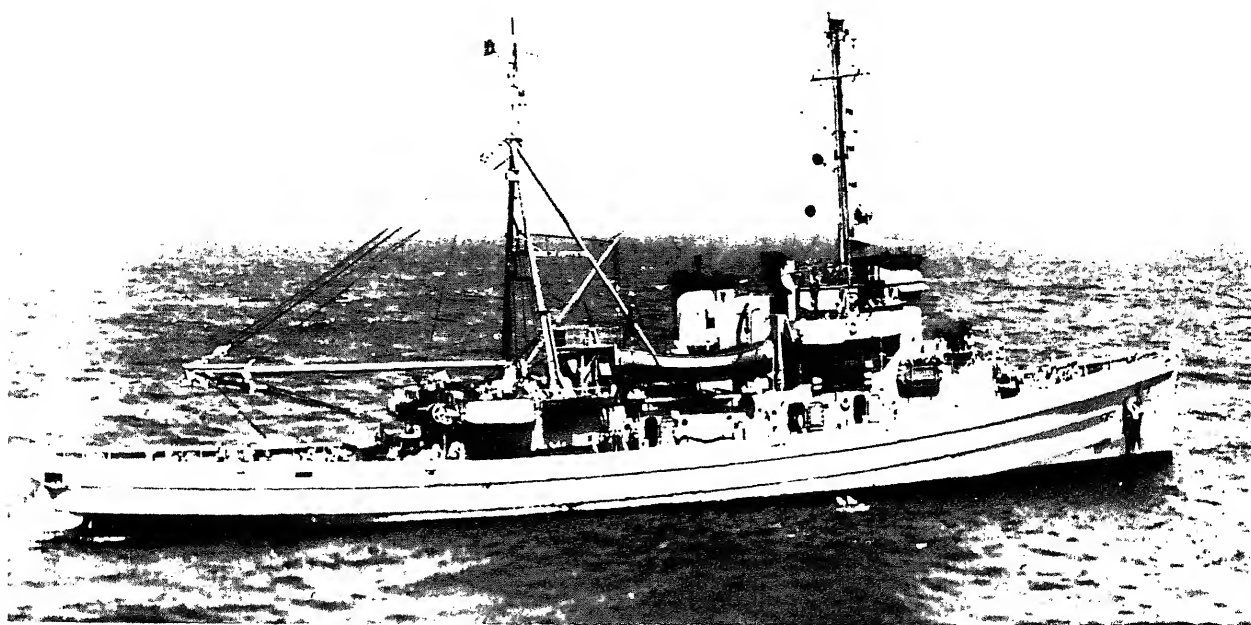
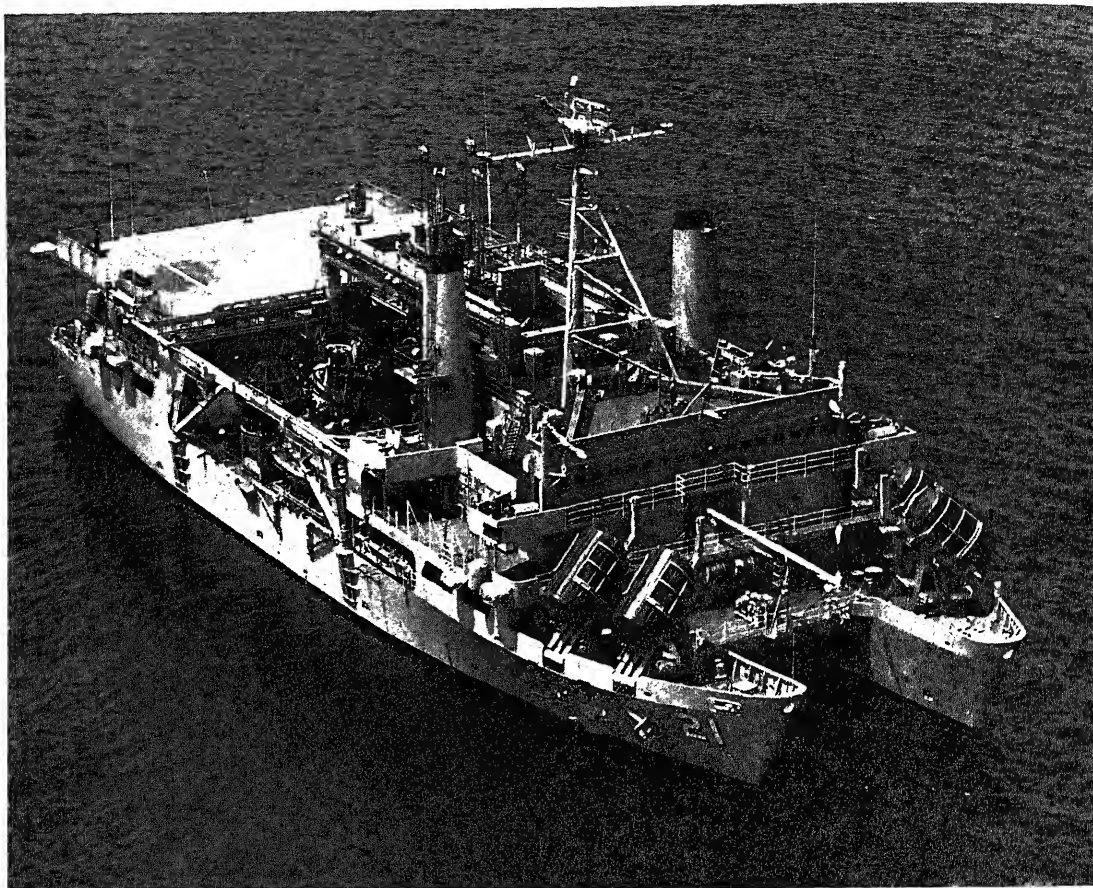


Figure 16-36.—Powered by diesel engines, the fleet ocean tug (ATF) is a seaworthy craft with many capabilities.



134.20

Figure 16-37.—USS Pigeon (ASR-21).

The ATS is designed as a combination salvage and rescue vessel capable of fighting fires on other ships and supporting dives down to depths of 850 feet. This is over five times the depth an ARS can support. As compared to ARSs the ATS is larger and has increased capabilities in all areas of operation. It carries a crew of 100.

There is also the submarine rescue vessel (ASR), designed and equipped to rescue crews of sunken and disabled submarines. ASRs are equipped with automatic towing machines, booms, and varying amounts of firefighting equipment. As a part of the operating crew, each ship has 4 officers and 22 enlisted personnel who are deep-sea divers trained in submarine

rescue and salvage work. They are the only ships in the U.S. Navy which have mixed gas (HeO_2) diving capabilities. This permits their divers to descend to 400 feet.

A typical ASR is 251 feet in length, and has a 44-foot beam and a draft of 16 feet. Although they carry the latest rescue equipment, they are not equipped for deep rescue.

The *Pigeon* class (ASR-21) (figure 16-37) was the world's first ship designed specifically for submarine rescue, all others being adaptations of tug types. Its unique design is the catamaran hull which has not been used in the Navy since 1812. It provides a large deck area, improved stability when operating equipment at great depths, and a helicopter deck.

Some of its capabilities include surface support ship for deep submergence rescue vehicles (DSRVs), major deep-sea diving support ship, and operational control ship for salvage operations.

SERVICE CRAFT

Among the hardest-working ships of the Navy are the service craft. Not primarily fighting ships, they are for the most part unarmed. These are utilitarian ships that serve a variety of

purposes in continental and overseas harbors, in sea frontiers, convoys, amphibious forces, and in task forces. Many are small, but of incalculable use to the Navy.

With a few exceptions, service craft designations start with the letter Y. A few of the class names will serve to show the wide variety of duties which they perform: Auxiliary floating drydock (AFD); floating crane (YD); diving tender (YDT); ferryboat or launch (YFB); fuel oil barge (YO); gasoline barge (YOG); oil storage barge (YOS); floating workshop (YR); tug (YTL, YTM, or YTB); and water barge (YW).

CHAPTER 17

NAVAL AVIATION

The history of naval aviation goes back to the turn of the century when an Army-Navy board, after studying designs for the Langley "flying machine," agreed that aircraft could be developed for use in warfare.

The first naval officer selected for flight training was Lieutenant T. G. Ellyson, who received orders in December 1910 to undergo instruction with Glenn Curtiss, producer of the first practical hydroplane. The first shipboard takeoff was made in 1910 from the *USS Birmingham* by a Curtiss pilot, Eugene Ely, who later also became the first pilot in history to land an aircraft successfully on a ship (the deck of the armored cruiser *Pennsylvania*). In July 1911 the Navy received its first airplanes—a Wright landplane, a Curtiss slow-flying landplane for training, and a Curtiss hydroplane. The next year Lieutenant Ellyson demonstrated the feasibility of the newly devised compressed air catapult by flying a plane shot from a barge.

On the eve of World War I, the Navy had only 48 officers and 239 enlisted men assigned to aviation duties, plus 5 officers and 30 men of the Marine Corps, and 54 airplanes useful only for training. By the time the Armistice was signed, the Navy's aeronautical organization had grown to some 39,900 officers and men.

In 1921 the Bureau of Aeronautics was created. The following year brought into existence our first carrier, the *Langley*, converted from a collier. Two battle cruiser hulls were converted to the carriers *Lexington* and *Saratoga*, commissioned in 1928.

During the 1930s, experimentation in aircraft functions progressed. Speed was increased, folding wings were introduced to

facilitate stowage, and the planes were given greater cruising ranges. Some types of aircraft were constructed to carry heavier offensive armament than had previously been possible.

The first ship designed from the keel up as a carrier was the *Ranger*, commissioned in 1934. This was followed within 4 years by construction of two others, *Yorktown* and *Enterprise*.

After the fall of France in June 1940, it was practically certain that the United States would be drawn into the conflict, and Congress authorized an immediate ceiling of 4,500, 10,000, and finally 15,000 naval aircraft during that year. But as in the first war, production was already falling short of the demands placed on it by the Army, Navy, and foreign countries. Government funds were soon granted to private firms to increase their facilities for aircraft research and manufacture.

In 1939, President Roosevelt ordered the Navy to establish an Atlantic neutrality patrol for the purpose of detecting and reporting belligerent forces nearing our east coast. The neutrality patrol was first confined to a hundred miles offshore. Then bases in Newfoundland, Bermuda, and the West Indies were obtained from Great Britain under a so-called "destroyers-for-bases" exchange agreement, making it possible for patrol operations to be extended much farther. By 1941 the air and surface patrol had been extended to the South Atlantic and the northern portions of the North Atlantic. Passage of the Lend-Lease Act in 1941 brought with it the need for naval patrol planes to protect shipping some distance after they left our ports. Bases in Iceland and Greenland and along the north

shore of South America, established to protect supply routes, also afforded further experience for aircraft operation—all of this before the United States had entered the war.

WORLD WAR II

Any doubt as to the effectiveness of shipboard aviation was effectively dispelled after the first blows struck at Pearl Harbor on 7 December 1941. Fortunately, American carriers were absent from the scene that fateful morning and hence could deliver some retaliatory blows soon afterward on enemy installations in the Pacific.

The following discussion of naval aviation in World War II does not attempt to recount all of the many achievements of naval planes and carriers. It is, rather, intended to set forth the manner in which naval aviation was employed during the conflict.

The steady progress of enemy forces toward Australia threatened supply lines to the Southwest Pacific. But in May 1942, as they were ready to round the eastern end of New Guinea and to land on the island's southern shore at Port Moresby, they met their first major setback. The carriers *Lexington* and *Yorktown* intercepted their advance, and after a series of engagements stretching from 4 to 8 May, they turned back. Tactically, the Battle of the Coral Sea was perhaps a draw, but strategically it was of the greatest importance. The following month, the small forces at the disposal of CINCPAC turned back a superior Japanese force at Midway. The battle, on 3 and 4 June, resolved itself into a struggle for control of the air, and this was unquestionably achieved by the United States forces, which succeeded in sinking all four of the enemy's carriers. After they lost their air cover, the Japanese forces turned back and were pursued for two more days until they passed out of range. On the darker side, *USS Yorktown*, badly battered by air attack, was sunk by an enemy submarine torpedo while being towed to Pearl Harbor, and about 150 American aircraft were shot down in what both sides later agreed was the turning point of the war.

The defensive war in the Pacific was ended

could move forward to a limited counter-attack of their own. The push began on 7 August 1942, when the Marines landed at Guadalcanal. Although the Marines bore the brunt of the campaign, we lost two carriers and others were damaged. Carrier aircraft provided protection for some time after the initial landings, and several patrol squadrons had a support role throughout the campaign.

After Midway, the Japanese, having lost a significant portion of their carriers, land based their crack air groups and saw them gradually destroyed by the mounting United States air strength. Many of their skilled airmen were sacrificed in the Solomons campaign. In February 1944 their air force was defeated and their troops driven out of the South Pacific area.

On the other side of the world also, aviation was in action. Naval carriers covered the landings in Morocco in 1942 and those in southern France in 1944; battleship and cruiser aircraft spotted naval gunfire in Sicily and at Salerno. Navy observation pilots, flying RAF Spitfires from bases in England, also spotted for naval gunfire during the landings in Normandy. A major contribution of naval aviation in the Atlantic was in antisubmarine operations with the purpose not so much of sinking U-boats as of getting the ships carrying men and supplies safely to their destination. Here the closely coordinated action of the air and surface units brought gratifying results.

Day after day, flying boats and land-based aircraft set out from bases along the coasts of North and South America and North Africa; from the islands of Newfoundland, Greenland, Iceland, Bermuda, the Azores, and of the Caribbean; and from the shore of Britain herself.

The effectiveness of the new fast carriers of the *Essex* and *Independence* classes gave further proof of the dependability of the flattops in combat. The arrival of these new carriers in the Pacific in Mid-1943, and the rate at which they continued to augment fleet strength, permitted a change in carrier employment and the mounting of an amphibious campaign that started in the Gilberts in November 1943 and marched steadily across the Pacific, gathering momentum as it went.

Late in January 1944 the same forces moved

Kwajalein and Majuro Atolls. With Kwajalein secure, the carrier task forces moved on, and after raiding the Japanese base on Truk, they swung northward to assault Saipan, Guam, and Tinian in the Marianas.

From the early operations there gradually emerged a pattern which had reached virtual completion by the time the invasion of the Marianas commenced in June 1944. The fast carriers were employed in initial raids on the target to assist in softening up; then moved to isolate the area by attacking enemy air installations within operating range; and finally prevented the enemy from bringing up reinforcements or otherwise coming to the aid of his troops under attack.

The technique of close air support which permitted air attacks within a hundred yards of the front lines was constantly elaborated on and perfected during the war. Land-based Marine squadrons also used these methods with particular success, and in 1945 some Marine air units were based on escort carriers to support landings. In case of emergency, fast carriers, escort carriers, and (when within operating distance) Marine and Navy land-based aircraft provided mutual support.

In the battle of the Philippine Sea, fought during the invasion of Saipan, the Japanese carrier air force was virtually nullified as an effective fighting unit. On 19 June the Japanese forces, locating our fleet off Saipan, launched attack after attack. For more than 8 hours there was almost continuous air action over or near our ships. We suffered little damage, but of the 373 enemy planes that took off from the Japanese carriers, only 130 returned. Some were shot down by gunfire, but most of them were downed by our aptly named Hellcats. On the same day our submarines destroyed two Japanese carriers. In all, the enemy lost a total of 456 planes in that action, which has since been known as the "Marianas Turkey Shoot."

Late the next day, our aircraft discovered the location of the Japanese forces. In the subsequent strike, launched at extreme range, our planes accounted for another carrier, two fleet oilers, and several of the defending planes. In the retreat to Okinawa and the homeland, the

remaining six Japanese carriers bore the total a mere 35 operational planes.

Until organized resistance ceased on islands of Saipan, Tinian, and Guam, escort carriers continued to provide close air support while fast carriers made numerous attacks on islands to the north and south to prevent the enemy from sending land-based planes against our forces in the Marianas.

In the battle of Leyte Gulf in October 1944, naval aviation played an important part in eliminating the Japanese Navy as an effective fighting force. Air action alone sank a battleship, 3 carriers, 5 cruisers, and 12 destroyers; and assisted in sinking another carrier, cruiser, and destroyer. This was the score of the total of 26 enemy combatant ships sunk by all agents in the battle.

Two aspects of the air activity in the Philippines engagements are significant. Although the enemy delivered many air attacks, he depended on land-based aircraft whose operations were poorly coordinated with the actions of surface forces. The United States, on the other hand, relied mainly on carrier-based planes whose flexibility in meeting unforeseen contingencies and cooperation with surface forces were amply demonstrated. Before the war many students of aviation questioned whether carriers could operate in the vicinity of land masses amply stocked with land-based aircraft. In the operations against the Philippines, they received their answer.

Carriers covered the landings on Mindoro in December and those in the Lingayen section of Luzon during January. After the Lingayen landings, carrier support of the amphibious landings was no longer required in the Philippines. The carrier force operated on a perimeter from the beginning of the campaign at Leyte, attacking airfields in northern Luzon, Formosa, in the Ryukyus, and down the coast of the South China Sea as far south as Saipan, cutting off reinforcements that might have interfered with our campaign ashore.

Throughout the remainder of the war, naval aviation continued to be notably effective. Around Iwo Jima escort carriers were clustered, giving what support they could to the Marine

ashore. The fast carrier force also supported the invasion of Iwo Jima and during it cut off reinforcements from Japan with air strikes on Tokyo and its environs. But the capture of Iwo Jima turned out to be more a matter for flamethrowers and handgrenades than it was for close air support.

Air support on Okinawa was provided by attack and escort carriers, some with Marine air units, followed by Marine and Navy land-based squadrons and by Army Air Force squadrons, arriving as soon as captured airfields had been put in operating condition. Tender-based naval flying boats furnished search and reconnaissance before the troops went ashore on the main objective. When adequate facilities were ready, naval land-based patrol planes relieved the flying boats and conducted search and antishipping sorties as far north as the shores of Korea.

Okinawa was the climax of the Pacific war, although it did not appear so at the time. The requirements of the battle, urgent as they were, did not halt the progress of plans for the invasion of Japan. In July, Admiral Halsey and Vice Admiral McCain, joined by a British carrier task force, led the Third Fleet against the main islands of Japan. They made many damaging attacks, destroying over 1200 aircraft and sinking more than 250,000 tons of shipping before the enemy surrendered.

KOREAN CAMPAIGN

From the start of the Korean campaign the ready support of carrier aircraft played an important role. As the campaign continued, the pattern of Navy and Marine Corps aviation operations fell into a fixed routine. One to three attack carriers worked the east coast of Korea, while at least one other was in Japan for rest and replenishment. At times, one escort carrier with a Marine attack squadron aboard worked the west coast of Korea. These vessels served as a team with other ships whose duties were escort, bombardment, minesweeping, and blockading. The fast carriers carried both jet and prop aircraft. At the same time, other Marine squadrons were shore based to render air support to ground forces.

Operations fell into three types: air support, interdiction, and combat air patrol.

Air support consists of attacks—usually near the front line—the primary purpose of which is to render direct assistance to ground forces. These attacks may involve strafing, bombing, rocket fire, or napalm (jellied gasoline, which is ignited on contact).

Interdiction, an attack on supply lines, is an effort to destroy railroad rolling stock, trucks, bridges, electric powerplants, and so on. The operations are planned so that the maximum crippling effect is obtained with a minimum effort.

Combat air patrols consist of flying fighter cover for the ships and aircraft that are conducting the actual attack program.

Of no great surprise to the Navy was the usefulness of the carrier in a dry-land war. The fast carrier provided a mobile base for heavy attacks in the northern parts of Korea, from which the striking aircraft could fly without carrying excessive fuel loads.

The Korean effort was made especially difficult by the necessity of keeping up a program of training, research, and patrol which had no relation to the combat operations carried on in that campaign. Our ships patrolled waters of all oceans and sea. Combined operations with other nations, particularly in Europe, required many men, ships, and aircraft. Our larger carriers (*Midway* class) remained in the Atlantic or in the Mediterranean areas. At the same time, building of new models of ships and aircraft continued.

POST-KOREA DEVELOPMENTS

The *Midway* (CVA 41) and *Essex* (CVS 9) class carriers that had been the Navy's first line of airpower since the end of World War II, were dwarfed in the late 1950s by the mighty 78,000-ton attack carriers *Forrestal* (CVA 59), *Saratoga* (CVA 60), *Ranger* (CVA 61), and *Independence* (CVA 62). In 1961 the missile-armed *Kitty Hawk* (CVA 63) and *Constellation* (CVA 64) came into service. The

following year, the nuclear powered *Enterprise* (CVAN 65), the largest combatant ever built, joined the fleet. While the debate over the value of nuclear powered surface ships continued, two more conventionally powered CVAs, *America* (66) and *John F. Kennedy* (67) were commissioned before the CVAN 68 (*Nimitz*) was laid down. The carriers listed above, beginning with the *Forrestal*, have been redesignated CVs.

On carrier flight decks, steam-operated catapults were installed to handle heavier aircraft, while the mirror (and later, the electronic carrier-controlled) landing system made it safer for pilots to come back aboard ship. Installation of hurricane bows reduced chances of storm damage to flight decks. As new aircraft like the F-4 and F-8 consistently broke the sound barrier under operational conditions, guided missiles supplemented guns on fighters and interceptors. The development of greatly sophisticated electronic devices led to aircraft like the RA-5C Vigilante, the A-6 Intruder, and the A-7E, capable of flying in any weather.

Although ships can move around the world, the availability of fully operational, prestocked land bases decreases sharply with distance away from industrialized nations. A carrier is a movable airbase complete with runways, air traffic control, fuel and ammunition storage and handling facilities, base defense, communications, housing, water, and use rights (sovereignty).

The use of naval units as a deterrent to direct land aggression is a relatively new function of seapower that came into being during World War II with the integration of tactical air power as an integral part of the fleet. The aircraft carrier today operates daily as an instrument of national policy in direct support of our diplomatic negotiations.

In addition to the Korean action, in which 20% of U.S. combat sorties came from carrier-based Navy and Marine squadrons, carrier forces since World War II have been on the scenes of action or ready for action in furtherance of national purposes many times:

The evacuation of the Tachen Islands in 1955;

Suez in 1956, when aircraft from four CVAs provided cover for the evacuation of U.S. nationals in the Near East;

In 1957 when President Eisenhower warned against a Communist takeover in Jordan;

In 1958 six CVAs in the Formosa Strait dampened a developing Quemoy and Matsu crisis, while two CVAs covered an Amphibious Landing in Lebanon;

In 1960 carriers of the Seventh Fleet were on hand for possible action in Laos;

In 1961 two CVAs provided prominent evidence of United States concern when a general uprising seemed about to follow the assassination of President Trujillo of the Dominican Republic;

In 1962 Seventh Fleet carriers covered the deployment of Marines in Thailand, and throughout the Cuban crisis of 1962, three CVAs were in readiness in Cuban waters;

In 1963 and 1964 carriers permitted the United States to demonstrate its presence and intentions in Haiti, Laos, Jordan/Lebanon, Honduras, and South Vietnam.

In August 1964, in response to a torpedo boat attack on U.S. destroyers in the Gulf of Tonkin, carrier aircraft struck bases in North Vietnam. Six months later strikes began on a daily basis, the tempo of operations steadily increasing. Carrier pilots scored the first confirmed kills of Soviet-built Mig aircraft over North Vietnam. Nearly half of all sorties flown over North Vietnam came from carrier decks.

The Navy has played an important role in support of United States space activities. Recoveries of all manned spacecraft to date have been made at sea by naval units. Floating tracking and communication stations in the vast expanse of the Pacific helped to ensure the success of each of those ventures. The Navy has much to gain from the region beyond the atmosphere. Navigational satellite systems a

continually utilized by Polaris submarines and other units. Communication satellites permit "instant" contact with any part of the world. Weather, upon which many facets of naval operations depend, is continually tracked and photographed by satellite.

AIRCRAFT NOMENCLATURE AND MODEL DESIGNATIONS

FIXED-WING AIRCRAFT NOMENCLATURE

A fixed-wing aircraft may be divided into three basic parts—fuselage, wings, and empennage.

The fuselage is the main body of the aircraft, containing the cockpit and, if there is one, the cabin. On virtually all naval fighter and attack aircraft operational today, engines are mounted within the fuselage, as are some of the fuel tanks.

Wings are the primary lifting devices of an aircraft, although some lift is derived from fuselage and tail. Located on the trailing (rear) edge of the wings are flaps, which may be used to give extra lift on takeoff or to slow the aircraft in flight or landings; ailerons, that control the roll, or bank, of the aircraft; and trim tabs, used to aerodynamically unload the control surfaces to relieve some of the pilot's work. On the leading (front) edge of the wing may be found auxiliary lifting devices, resembling flaps, that are used to increase camber (curvature) of the wing for added lift on takeoff. Most Navy jet aircraft carry their bomb loads on pylons (called stations) under the wings and, in some cases, under the fuselage. Some jets have missile stations on the sides of the fuselage. In the wings are located fuel cells; additional external tanks can be fitted for extra range. Larger jets may have their engines slung beneath the wings in pods. Some low-wing aircraft have their main landing gear retract into the wings while the nose wheel retracts into the fuselage. On most high-wing aircraft, such as the A-7, all gear retracts into the fuselage.

The empennage consists of the stabilizing fins mounted on the tail section of the fuselage.

These include the vertical stabilizer, upon which is generally mounted the rudder, that is used to control yaw, or direction of the nose about the vertical axis; and the horizontal stabilizer, on the trailing edge of which are the elevators, which determine the pitch (climb or dive). Some supersonic aircraft may have a full delta wing, in which case there is no horizontal stabilizer and the elevators and ailerons are combined into control surfaces called elevons. In aircraft with internally mounted jet engines, exhausts normally are in the tail. High performance jets have afterburners that give additional thrust at the cost of greatly increased fuel consumption.

Rudder, ailerons, and elevators are collectively grouped as control surfaces. These surfaces are controlled by the "stick" or a similar device in the cockpit, while the rudder is controlled by foot pedals. On high performance aircraft, aerodynamic pressures on these surfaces become too great for a pilot to overcome manually; hence, all high-speed models today have power-assisted controls.

ROTARY-WING AIRCRAFT NOMENCLATURE

The aerodynamics of rotary-wing aircraft are considerably more complex than those of fixed-wing aircraft. A helicopter essentially consists of a fuselage, main rotor or rotors, and often a tail rotor.

The fuselage, as in fixed-wing craft, contains the cockpit and cabin.

The main rotor is the approximate equivalent of the wing of a fixed-wing aircraft. Each rotor blade is an airfoil, like a wing, and the lift is generated by the rotation of the assembly which creates a flow of air over the blades. A helicopter is lifted into the air by the aerodynamic forces on the rotor, and not pushed up by the downwash. Some helicopters have twin rotors in tandem at either end of the fuselage, but most have a single main rotor with a tail rotor mounted at right angles. A few have tandem intermeshing rotors.

The tail rotor (where present) is used for directional control and stability. It is mounted

at right angles to the main rotor to counteract the torque of that system. By varying the pitch of the tail rotor blades, the pilot controls yaw. Pitch and roll are determined by effectively tilting the entire main rotor. To climb, the pitch (essentially how much of a bite of the air the blades take, as distinct from aircraft pitch) is simultaneously increased on all blades on the main rotor.

Helicopter engines are connected to the rotor shaft(s) by a transmission, which may be disengaged. This permits the engine(s) to be operated on the ground without engaging the rotor system and also permits a mode of flight known as autorotation. If the engines should stop while in flight, they can be disengaged, and the freewheeling action of the rotor will allow a slower descent.

AIRCRAFT MODEL DESIGNATIONS

All aircraft have tri-service designations; a given aircraft bears the same alpha-numeric identification symbol regardless of whether the craft is used by the Navy, Army, or Air Force.

Each basic designator consists of a letter and a number. The letter specifies the basic mission of the aircraft as follows:

A—Attack	R—Reconnaissance
B—Bomber	S—Antisubmarine
C—Cargo/transport	T—Trainer
E—Special electronic installation	U—Utility
F—Fighter	V—VTOL or STOL
H—Helicopter	(vertical or short takeoff and landing capability)
K—Tanker	X—Research
O—Observation	
P—Patrol	

The number (which may consist of 1, 2, or 3 digits) indicates the design number of the type of aircraft. The designator A-7 shows an aircraft to be the seventh attack design (figure 17-1). If a particular design is modified, the design number is followed by another letter (A, B, C, etc.), the alphabetical order of which identifies the number of the modification. For example, the second A in A-6A tells us that the original design of this attack plane has been modified one time.

When an aircraft is modified from its original mission, a mission modification letter precedes the basic mission symbol. These are as follows:

A—Attack	L—Cold weather
C—Cargo/transport	M—Missile carrier
D—Director (for control of drones)	Q—Drone
E—Special electronic installation	R—Reconnaissance
H—Search and rescue	S—Antisubmarine
K—Tanker	T—Trainer
	U—Utility
	V—Staff
	W—Weather

Thus, if the F-4A is modified to be used as a training aircraft, it is identified thereafter TF-4A.

Other letters that infrequently appear before a basic mission or mission modification letter are “special use” symbols that indicate the special status of an aircraft. Currently, special-use symbols are six in number:

G—Permanently grounded (for ground training)
J—Special test, temporary (when tests are complete, the craft will be restored to original design)
N—Special test, permanent

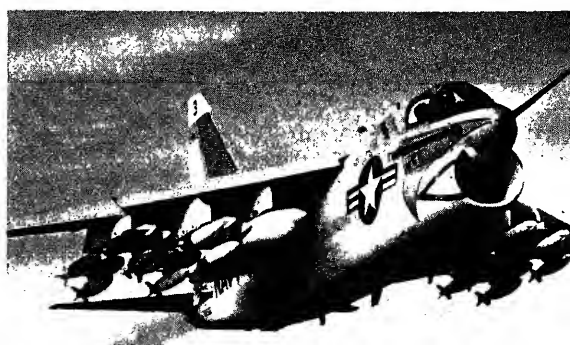


Figure 17-1.—A-7 Corsair limited all-weather attack plane.

X—Experimental stage of development

Y—Prototype (for design testing)

Z—In early stages of planning or development

CURRENT NAVY AIRCRAFT

This section briefly describes some of the aircraft currently operational with the Navy. Representative types are shown in figure 17-2.

Attack Class

Attack planes are used for low-level bombing, ground support, or nuclear strikes. They do not need the speed of fighters, but should be capable of heavy payloads, have good stability, and be able to carry enough fuel to remain on station long enough to render extended support to troops, if needed. Attack aircraft normally operate under conditions of good visibility, but the A-6 has the equipment needed for all-weather and night attacks.

A-7 CORSAIR II: Namesake of the old F4U that served so well in World War II and Korea, the A-7 Corsair is designed as a replacement for the A-4. The airframe is basically a shortened Crusader (the F-8). A single-seat all-weather craft, the Corsair carries bombs and rockets mounted on six stations under the wings in addition to two internal 20-mm cannon or a 20-mm internally mounted "gatling gun" in the A-7E version.

A-6 INTRUDER: The Intruder is an all-weather attack vehicle. Fitted with complex and sophisticated electronic gear, the A-6 has, among other things, a radar that can be set to fly automatically over any terrain, an inertial guidance system that operates independently of any external navigational aids, and an automated landing system. Pilot and bombardier-navigator sit side by side.

AV-8A HARRIER: The Harrier is the western world's only operational fixed-wing vertical short takeoff or landing (V/STOL) strike

aircraft. It is an integrated V/STOL weapon system incorporating inertial navigation and attack system (INAS) with an electronic display. The aircraft is used by the Marine Corps and is operated from the decks of aircraft carriers and amphibious support ships.

Fighter Class

Fighters are high-performance aircraft generally employed to gain air superiority. They may be deployed defensively as interceptors, offensively as escorts for bombers or on ground support missions, or independently to counter enemy aircraft. Some are capable of carrying sufficient payloads for collateral bombing missions.

F-4 PHANTOM II: The Phantom is a two-place, twin-engine, Mach 2 vehicle of both air intercept and ground support missions. Installed equipment permits all-weather operations. Bomb loads include various combinations of weapons. In one configuration, the F-4 can mount twenty-four 500-pound bombs—twice the load the World War II B-17 bomber could carry.

F-14 TOMCAT: The F-14 Tomcat is a high-speed, aircraft-carrier based, jet-powered aircraft of the fighter variety. The aircraft is mainly missile orientated, carrying the new air-to-air missile, Phoenix, and also capable of carrying the older Sidewinder and Sparrow. The Tomcat can be configured for bombing and rocketry.

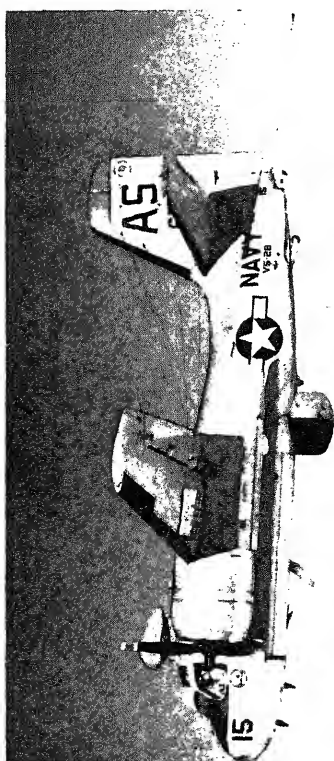
Patrol Class

Patrol craft are land-based, long-range, multi-engine aircraft used primarily for ASW patrol. Patrol squadrons operate from CONUS and overseas bases. The last seaplane squadron was retired in 1967.

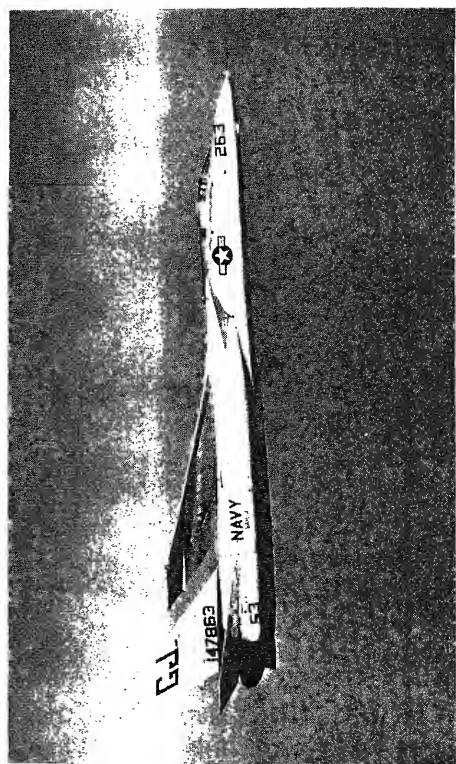
P-3 ORION: The P-3 is equipped with magnetic anomaly detection (MAD) gear, sonobuoys, radar, Jezebel, and other systems for detection; and armed with torpedoes, bombs, rockets, and depth charges for kills. It has the primary mission of detecting, locating, and



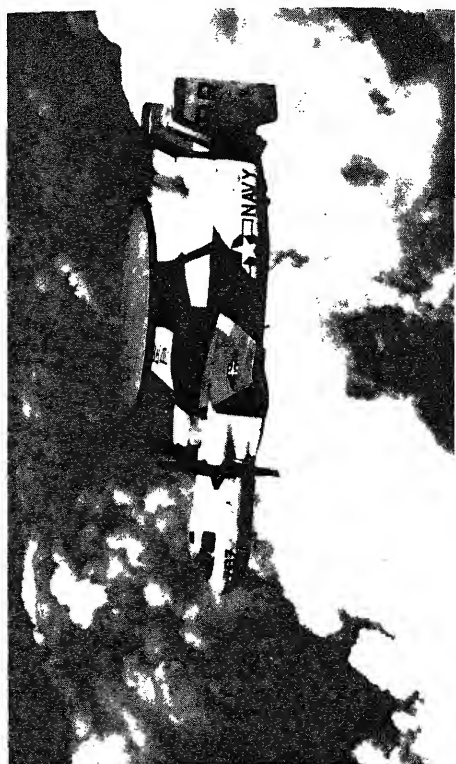
E. P-3 ORION. LAND-BASED LONG-RANGE PATROL CRAFT.



F. S-2 TRACKER. FOUR-SEATED SUBMARINE SEARCH AND ATTACK PLANE.



G. RA-5C. MACH-2 RECONNAISSANCE-ATTACK VEHICLE.



H. E-2 HAWKEYE. EARLY WARNING CRAFT.

destroying enemy submarines. The P-3 can respond quickly to prosecute submarine contacts long before surface units could arrive. Other duties include convoy escort, certain photographic missions, and aerial mining.

Antisubmarine Class

Antisubmarine aircraft operate from CVs in conjunction with hunter-killer group helicopters and surface craft.

S-3 VIKING: The Viking is a high-wing, jet-powered twin-engine carrier ASW aircraft. It carries surface and subsurface search equipment with integrated target acquisition and sensor coordinating systems which collect, interpret, and store ASW sensor data.

It has direct attack capability with a variety of armament.

Reconnaissance-Attack Class

Reconnaissance-attach aircraft have a dual mission—to gather intelligence while retaining strike capability.

RA-5 VIGILANTE: Originally built as a Mach 2 heavy attack aircraft, the Vigilante was converted into a multisensor reconnaissance-attack vehicle as Polaris took over the Navy's strategic strike role. It carries a large assortment of electronic devices, sensors, and photographic equipment. In addition, it retains some of its weapons delivery capability from an internal bomb bay. It is manned by a pilot and reconnaissance attack navigator.

Warning Class

Carrier-based airborne early warning (AEW) aircraft maintain station at some distance from a task force to provide early warning of approaching enemy aircraft and direct interceptors into attack position.

E-2 HAWKEYE: Long-range antennas of the E-2 Hawkeye are enclosed in a saucer-shaped, rotating disc atop the fuselage. The E-2 is

equipped with the airborne tactical data system (ATDS) used in conjunction with the shipboard naval tactical data system (NTDS). In figure 17-2, note the quadruple vertical stabilizers. Hawkeye is manned by a crew of five.

Rotary-Wing Aircraft

Since World War II, the helicopter has become an indispensable part of naval warfare. Its applications seem limitless—ASW; pilot rescue; transfer of supplies, mail, and personnel within dispersed forces; amphibious warfare; evacuation of wounded; counterinsurgency; minesweeping; and others. Representative types are shown in figure 17-3.

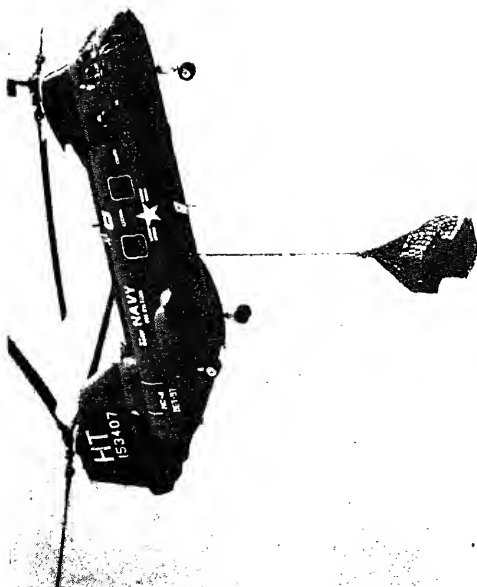
CH-46 SEA KNIGHT: The Sea Knight is a twin-turbine transport vehicle that provides the fleet with a day/night underway replenishment capability. It is used primarily for supply missions at sea and for casualty evacuation. Carrying capacity is 25 troops, 15 litters and attendants, or 4000 pounds of cargo. Rotor blades fold for shipboard use. The CH-46 is a small version of the Army's Chinook.

SH-3 SEA KING: The SH-3 is a twin-turbine, all-weather helicopter designed for ASW use. It carries dipping sonar, torpedoes, and depth bombs. It utilizes a special radar altimeter that automatically maintains altitude while dipping. The two turbines are mounted side by side on one rotor instead of in tandem as on the CH-46.

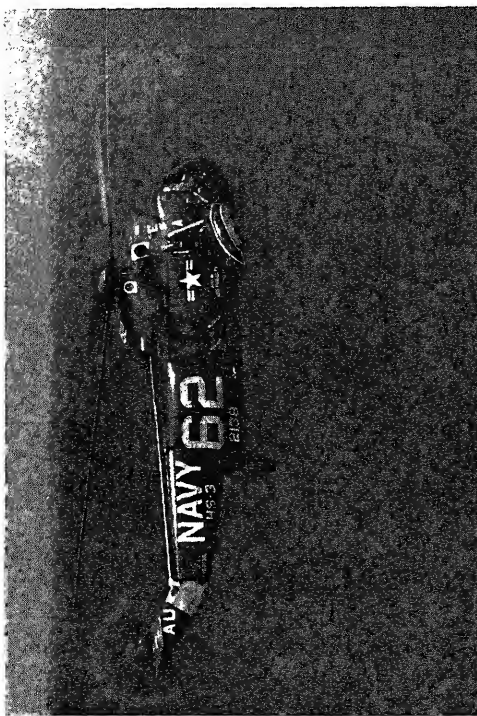
H-2 SEASPRITE: The Seasprite, an ex-utility helicopter, is now serving in the LAMPS Program (Light Airborne Multipurpose Program System) with the destroyer navy.

RH-53D SEA STALLION: The Sea Stallion is a singular aircraft in that the Navy has only one squadron. Its mission is worldwide quick-reaction mine countermeasures, capable of rapid mobility and deployment of highly trained mine countermeasure detachments.

Other craft shown in figure 17-3 include the UH-2C Seasprite (utility) and TH-57A Jet-ranger (training) helicopters.



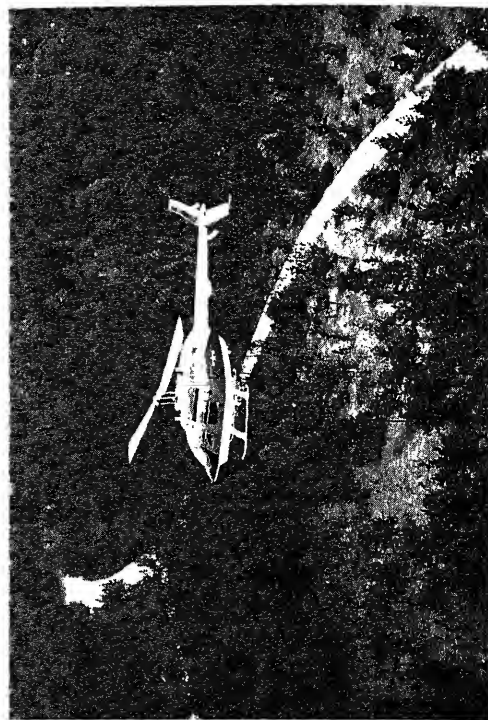
A. CH-46 SEA KNIGHT - TRANSPORT



B. SH-3A SEA KING - NAVY'S FIRST-LINE ASW HELICOPTER



C. UH-2C SEASPRITE - UTILITY



D. TH-57A JETRANGER - TRAINING

ADMINISTRATION OF NAVAL AVIATION

In the Navy Department, the Secretary of the Navy, the Deputy Chief of Naval Operations (Air), the Chief of Naval Material, and the Commander, Naval Air Systems Command have responsibilities in connection with naval aviation.

Functions of DCNO (Air) pertain in general to the coordination of aviation activities within and outside the service. Specifically he ensures that the service prepares and supports an aviation organization ready to perform tasks set by the Chief of Naval Operations.

Under the Chief of Naval Material and the Commander, Naval Air Systems Command, the Naval Air Systems Command provides aeronautical material support for aviation activities and facilities ashore and afloat. To accomplish its mission, the command frequently works in close cooperation with other commands and offices; for example, it collaborates with NAVSEASYS COM in matters concerning design, procurement, and installation of aeronautical features and facilities in ships.

The naval aviation shore establishments include Navy and Marine Corps air base commands, air stations, and less extensive facilities; the Naval Air Training Command and its functional training commands; the Aviation Supply Office; supply depots and annexes; and certain naval air details that provide services for special missions. Also supported by NAVAIR are certain other special activities, such as the Naval Air Test Center and the Naval Air Engineering Center.

FLEET AVIATION

Two naval air forces compose fleet aviation: Naval Air Force, Atlantic Fleet and Naval Air Force, Pacific Fleet. The Commander Naval Air Force, U.S. Atlantic Fleet (COMNAVAIRLANT) and Commander Naval Air Force, U.S. Pacific Fleet (COMNAVAIRPAC) have broad responsibilities in fleet aviation. Briefly, they establish policies pertaining to the organization, operation, and employment of fleet aviation; they study the

strategic situation and make recommendations concerning the distribution of naval air forces; they advise the fleet commanders on air operations. In addition they are responsible for implementing aircraft maintenance programs, scheduling aircraft for rework (overhaul) and developing equipment and material requirements, for squadron training, and for the preparation of operational doctrines for all types of aircraft. In all these duties they maintain close liaison with DCNO (Air) and NAVAIR.

Smaller units of the fleet aviation organization are the carriers: the carrier aircraft wings (figure 17-4) and squadrons, fleet air wings, utility wings, and logistic support wings.

NAVAL AIR TRAINING COMMAND

The Chief of Naval Air Training at Corpus Christi, Texas, is responsible for the flight training of Navy and Marine aviators for the fleet.

There are three definite phases of advancement in naval air training; preflight (ground) training, limited to ground school subjects and indoctrination; basic training, including primary and basic flight; and advanced training, wherein the student pilot becomes skilled in the operation of fleet-type aircraft and continues his ground training in essential subjects.

The Naval Aerospace Medical Institute (NAMI), Pensacola, Florida, is responsible for training aerospace medical personnel for duty with aviation units throughout the Navy and Marine Corps. Flight surgeons, naval aviation medical officers, aerospace physiologists, aerospace psychologists, aerospace medical technicians, aerospace physiology technicians and audiometry technicians graduate from the institute prepared to serve the medical needs of aviation personnel in operational fleet units and in the shore establishment.

MARINE CORPS AVIATION

For a complete discussion of the U.S. Marine Corps, see chapter 11.

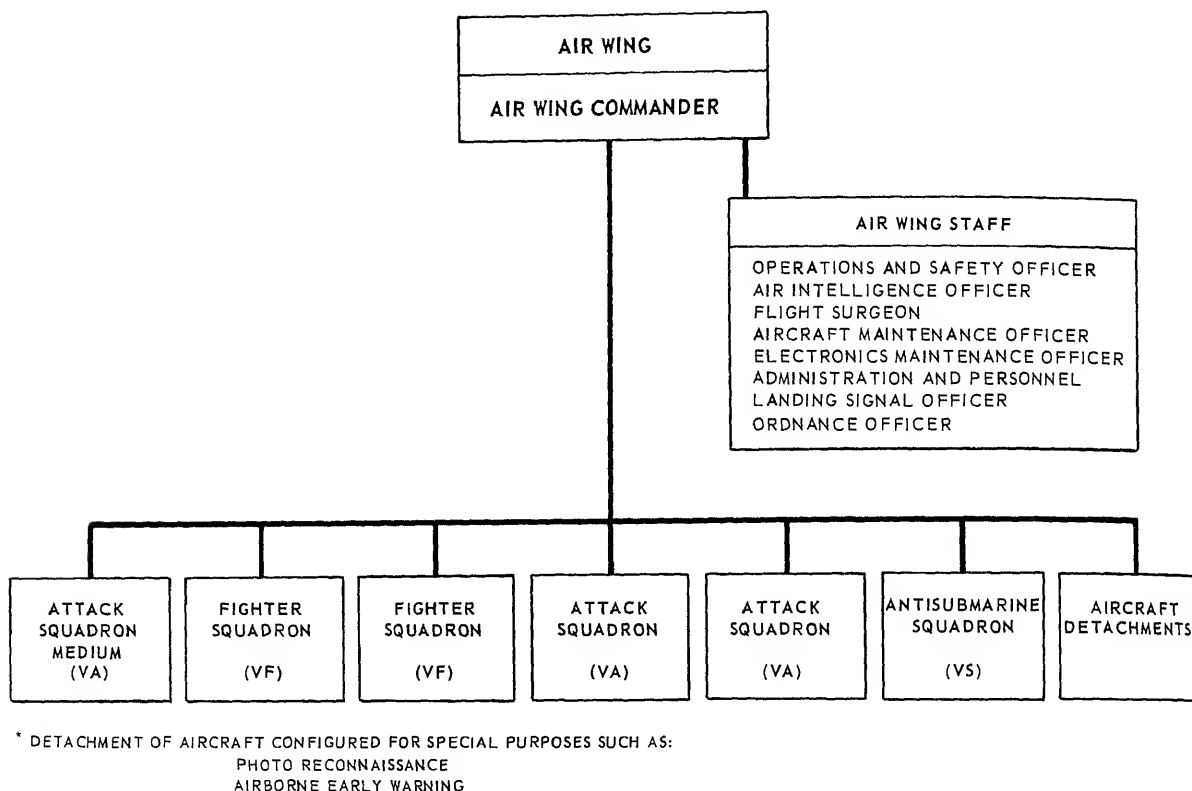


Figure 17-4.—Administrative organization of a typical shipboard air wing.

The main function of Marine Corps aviation is to support FMF operations. To do the job, public law provides that the Corps, in addition to its combat divisions, is so organized as to include not less than three air wings. Marine Corps pilots are trained by the Navy in Navy programs and are designated as "naval aviators."

The operational relationship between the Marine Corps and the Navy is not fully understood by all. The main point to bear in mind is that the combat elements of the Corps—the fleet Marine forces—are assigned to the Operating Forces of the Navy. As an integral part of a balanced fleet, those elements are attached to the operational command of the area unified commander.

An important part of the fleet is the amphibious task force; the responsibility for the development and maintenance of an effective amphibious warfare capability is incumbent upon the Navy and Marine Corps jointly.

Marine aviation is organized, trained, equipped as a completely expeditionary component of an integrated air/ground task force (the FMF). Marine aircraft can and do operate from carriers; but the particular specialties of Marine Corps aviation is moving into the objective area expeditiously to provide tactical air support for an amphibious landing force.

AEROSPACE MEDICINE AND SPACE RESEARCH

Rapid strides in aeronautical technology have resulted in aircraft of constantly increasing speed, maneuverability, range of action, power and rate of climb. Frequent changes in design have altered the concepts of human endurance limitations. The linking of medical science to the art of flying and aeronautical engineering has resolved questions of aerospace medical significance.

The violent forces of high-speed flight combined with unfriendly aerophysical phenomena of lowered atmospheric pressures and bitter cold temperatures conspire to prevent man's invasion of spatial regions beyond a few thousand feet above the Earth's surface without protection. The scientific skills of those working in aerospace medicine are resolved to give man that protection required to overcome these obstacles and ultimately provide long-term life support and environmental systems that will permit the once earthbound human to travel the limitless skies in relative comfort and safety.

As problems and needs arose or were foreseen they were studied and resolved. Lap belts, and then shoulder harnesses, to keep pilots from being thrown from planes or being slammed into the aircraft structure, enabled many pilots to survive plane crashes. Today, advanced and complex restraint systems have been designed to maintain the astronaut in a supine couch within a space capsule during periods of rapid acceleration and deceleration. Control systems have been devised so that a pilot can control his vehicle with only hand and wrist movements while the rest of his body, including the forearms, is fully restrained.

Need for escape from distressed aircraft while still in flight forced the development of reliable escape and recovery systems. To jump from a slow, open cockpit plane was no problem and the pilot could float safely to Earth suspended from his parachute. However, as speeds increased, the aviator was forced to open his aircraft canopy and frequently had to invert his plane to get out. At even higher speeds, escape by conventional means became impossible as windblast frequently pinned the aviator within the cockpit. To overcome this hazard, the ejection seat was developed, whereby the pilot in his seat is catapulted from the plane by means of a powder charge and/or a rocket, clearing the plane's tail surface and providing the aviator with sufficient height to allow seat and man separation and parachute deployment even at ground level. This last sequence is done automatically; even though he is unconscious, the aviator may be safely lowered.

Another new design is the integrated escape capsule which can be sheared from the rest of a

distressed plane to parachute to safety and serve as a survival vessel upon landing on the sea. A long-burning high-performance rocket system will enable an astronaut to rocket himself to safety if something goes amiss during the booster stage of a space vehicle launching.

High-flying aircraft necessitated supplying oxygen to the airman. This oxygen was first delivered through a pipestem contrivance held between the teeth. Soon, oxygen masks attached to the helmet were developed. Later, diluter-demand type oxygen systems, which meter varying percentages of the gas to the pilot dependent upon the pressure altitude were adopted. These, in turn, give way to the pressure-breathing systems as flights above 35,000 feet become more or less routine.

Above 30,000 feet, aeroembolism, or the bends, becomes an important enemy. The diver who ascends too quickly from the ocean depths suffers from the bends. This same condition is observed in pilots subjected to rapid changes in pressure or exposed to high altitudes for prolonged periods without protective devices. However, the pressurized cabin and use of full pressure suits permit the pilot to go safely to altitudes limited only by aircraft performance.

The invasion of space presents myriad new problems and compounds many old ones. Liquid oxygen supplied in high-performance aircraft greatly extends the flight time, but necessarily small-space vehicles preclude generous supplies of oxygen adequate for prolonged space travel. Hence, new methods for supplying oxygen must be found. Solid oxygen sources such as potassium superoxide (KO_2) and the regeneration of O_2 from CO_2 and H_2O , and other body wastes, by electrolytic or chemical means holds promise. In tight-space capsules the concentration of carbon dioxide, water vapor, and other noxious gases becomes a serious threat to the astronaut. Carbon dioxide and other gas scrubbers and water vapor condensers are required to keep the vehicle spaces livable.

Heretofore, the intense cold at high altitudes required aviators to be protected, first by bulky clothing and later, in closed cockpits, by heaters and air conditioners. With speeds reaching twice that of sound, the heat of friction causes cabin temperature to rise so that it is unbearable. Ventilation and refrigeration units are now

required in high-performance jet aircraft. And, in space and orbital vehicles where boost and re-entry phases produce ultrasonic speeds with resultant surface temperatures in the thousands of degrees Fahrenheit, reflective surfaces, ablative heat sink systems, ventilation garments, and heat reflective clothing also protect personnel.

Greater fuel capacity and in-flight fueling have extended flight duration, creating problems of fatigue, feeding, and disposal of human wastes. Space travel greatly intensified these problems. Then too, boredom and monotony will be factors of paramount importance for the space traveler. Thus, psychological as well as physiological matters demand the attention of the flight surgeon. Undoubtedly, new and undreamed of hazards will confront the astronauts as they extend their exploratory fields from lunar landings to interplanetary probes and landings and beyond to the interstellar space. Following are examples of activities engaged in aerospace medicine and space research that are prepared to meet the challenge of these hazards.

AEROSPACE CREW SYSTEMS DEPARTMENT (ACSD)

The Aerospace Crew Systems Department, a part of the Naval Air Development Center, Warminster, Pennsylvania, has been for many years a leader in the design and development of specialized air crew equipment, such as immersion suits, full pressure suits, protective helmets, restraint apparatus, ejection seat equipment, oxygen masks and regulators, and crash protection equipment.

The Laboratory is heavily involved in various supporting activities of the national space program. The full pressure suit worn by the first Mercury astronauts was designed and developed here. Human engineering studies of the displays and controls for the Mercury space capsule, study of heat stress profiles for the Mercury flights, and training of the Mercury astronauts in a full scale replica of the Mercury capsule placed inside of one of the Nations' largest low pressure chambers were accomplished here. Much

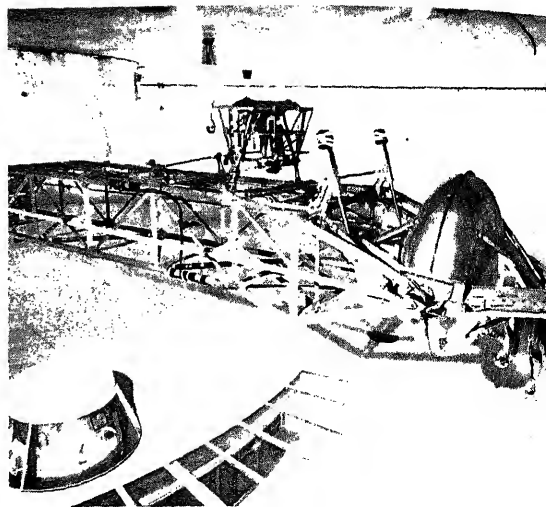


Figure 17-5.—Human centrifuge in use at the Aero Department, Naval Air Development Center.

research on the use of superoxides simultaneous provision of adequate source oxygen and absorption of CO_2 and water has been carried out.

This laboratory's principal role lies in the capability of applying the results of research to the development of usable items of hardware. Most of the aviation personal protective equipment used in the fleet has been developed or evaluated at ACSD.

Other ACSD activities are centered around one of the largest human centrifuges in existence (figure 17-5). The capabilities of the centrifuge are unique; in addition to its use in establishing the limits of human susceptibility to acceleration stress, it lends itself to combination with an analog computer to provide dynamic flight simulation. In this system, pilot-cockpit signals from the centrifuge gondola are transformed by the computer into drive signals for the centrifuge; at the same time, the computer drives the cockpit flight instruments to show the changing conditions of the flight. With this technique, occupants of the gondola of the centrifuge can "fly" exact replicas of flight patterns for both aircraft and space vehicles before the craft are actually flown. The gondola environment can simulate a pressure altitude

125,000 feet up to 20 Gs, with provision for temperature and humidity.

This capability has been invaluable in detecting many potentially fatal situations involving experimental aircraft. Additionally, it has proved to be a highly effective and realistic training for astronauts, by making it possible for them to “fly” through the profiles of their expected space flights before actual launching into space. Dynamic flight simulation provides a useful tool for the Armed Forces, NASA, and industry for explaining the acceleration, control, and display factors involved in flights of aircraft and space vehicles.

Many ancillary studies are conducted at the Aerospace Crew Systems Department in the fields of instrumentation, equipment design, biopack development, performance under stress, and biochemical stress indicators.

NAVAL AEROSPACE MEDICAL RESEARCH LABORATORY

The Naval Aerospace Medical Research Laboratory in Pensacola, Florida, has been involved in many fields of aerospace research, including biological effects of cosmic radiation. Laboratory personnel have accomplished significant work in the effects of noise on personnel, communication problems, psychological aspects of aerospace medicine, physical standards and qualifications criteria. They have also conducted basic research and studies in respiration, cardiology, and central nervous system functions.

The Laboratory's department of psychology contributes to the Naval Air Training Command by its program of selection, assessment and quality control of aviation personnel.

NAVAL WEAPONS SYSTEMS

Before the discovery of gunpowder, naval battles were fought with row-galley tactics. In general, two methods were employed. A galley could maneuver near the enemy and attempt to ram him, overturn him, board him by means of grappling hooks, or shave off oars by a close run. An alternative procedure was to catapult flaming sulphur, pitch, niter, or oil onto the enemy ship, row away, and watch the fire. Although crossbows and shipborne spring- or torsion-powered artillery did allow some battle action before actual ship-to-ship contact, the ram was the main weapon; speed and maneuverability were the best defenses.

DEVELOPMENT OF SHIPBOARD WEAPONS

The first recorded use of naval gunfire occurred when the Spanish fired on the Turkish fleet in 1453. This incident and others following demonstrated the possibility of destroying an adversary without physically coming in contact with him. Even so, most single-ship actions throughout the days of sail concluded with boardings or at least with ships lashed together. Ranges of early naval guns were spoken of as pistol shot and half pistol shot. Fire control devices were nonexistent, and accuracy was largely a matter of skillful seamanship. The development of fire control in the modern sense had to wait until the 19th and 20th centuries when refinements in the manufacture of guns and a detailed study of trajectory made accurate long-range shooting possible.

The first major engagement between modern battleships occurred at the Battle of the Yalu in 1894 between the Chinese and Japanese fleets.

Battle ranges increased from a few hundred yards at the Yalu to over 18,000 yards during the great fleet action at Jutland during World War I.

England had seaplane carriers in commission by 1916; and *HMS Argus*, her first flush deck carrier, was in the fleet by the end of World War I. Battleships and cruisers soon had flying platforms for scout planes, and light anti-aircraft weapons were located about the superstructure areas. As ASW grew in importance, destroyers assumed the role of primary antisubmarine ships. Depth charges were developed although ramming was still a favorite means of sinking U-boats. With the advent of directional hydrophones, ASW came to assume the role of full-time operation.

Between World Wars I and II, anti-aircraft devices appeared in increasing numbers, though inadequate, numbers (aviation was underrated as a threat). Catapults replaced flying-off platforms as seaplanes were fitted to most ships of cruiser size and larger. Dual-purpose guns and improved fire control appeared in the 1930s. In secrecy, Japan developed a 24-inch oxygen-fed torpedo, which proved superior to the steam-driven type employed by the Allies until the end of World War II.

The loss of our Pacific Battle Fleet at Pearl Harbor, followed by the sinking of *HMS Repulse* and *HMS Prince of Wales* by Japanese land-based planes shortly thereafter, ushered out the era of the "omnipotent" battleship in favor of aircraft carriers using aircraft as main weapons. Anti-aircraft armaments were drastically augmented. New battleships fairly bristling with 5-inch, 40-mm, and 20-mm guns were attached



134.161

Figure 18-1.—“Flak” is the term used for heavy anti-aircraft fire. The black puffs are caused by exploding shells sent up in barrages that enemy aircraft must fly through in order to press their attack.

as flak screens (figure 18-1) for fast aircraft carriers. Proximity-fuzed (VT-fuzed) shells were introduced in 1943. A VT fuze contains a radio transmitter/receiver that emits pulses of radio energy and receives a portion of those pulses when reflected from an object. If the projectile comes within 75 to 100 feet of its target, the returning pulse is strong enough to electrically activate the primer. With a VT fuze, therefore, a

near miss can be nearly as effective as a direct hit.

In antisubmarine warfare, the seriousness of the U-boat threat brought about radical innovations.

Depth charges were improved in lethality and depth capability. Because K-guns (depth charge throwers that had replaced World War I-vintage devices) required passage of the

attacking ship directly over the submarine, there resulted a loss of contact during the last few seconds of approach. Ahead-thrown devices were therefore developed to permit standoff attacks. Probably the most familiar of these weapons was the hedgehog, which fired 24 charges in a ring-shaped pattern to a range of about 250 yards, and the mousetrap, a small version of the hedgehog, designed for use by torpedo boats, submarine chasers, and other small craft.

Throughout World War II, the 21-inch steam torpedo was the mainstay of most navies of the world, with a few notable exceptions. Germany developed a wakeless electric torpedo, and the Japanese oxygen-fed 24-inch torpedo (already noted) remained the finest conventional torpedo of any nation during the war. After a great deal of trouble with exploders and depth control devices, U.S. torpedoes were finally perfected in 1943 and gave excellent service thereafter. Acoustical homing devices appeared in 1944.

In the area of conventional ordnance, it was discovered that neither the 20-mm nor 40-mm guns were very effective in stopping determined enemy aircraft pilots, such as the Japanese kamikazes (see chapter 2 under Admiral Halsey). A heavier automatic antiaircraft weapon was therefore developed—the 3"/50. By the early 1950s, this gun had replaced the quadruple 40-mm mounts on most active ships, and it is still in use. Later a 3"/70 fully automatic weapon, capable of firing 90 rounds per minute per barrel, was fitted on a cruiser and a few destroyers for use against high-speed aircraft. None of these remain operational.

To provide increased range over the 5"/38, which has been in the U.S. arsenal since the late 1930s, a slow-fire 5"/54 gun was first installed in *Midway* class CVBs in 1945. A rapid-fire version was fitted in *Mitscher* class destroyers of 1952. This rapid-fire version, with some modifications, was installed aboard virtually all destroyer types until 1974 when the new lightweight 5"/54 Mk 45 rapid-fire gun was introduced with the launching of the *California* class cruisers. This gun is capable of firing 16 to 20 rounds per minute and it requires no personnel in the gunhouse. It offers fully automatic operation, all-weather capabilities,

fire mission flexibility, and the highest missile availability of any comparable gun.

As aircraft performance (speed, maneuvering, and altitude capability) increased, the efficiency of gunfire against them decreased correspondingly. This led to development of antiaircraft missiles, which first became operational aboard CAGs *USS Boxer* and *USS Canberra* in 1955. Three types of missiles were developed: (1) Tartar, of relatively short range; (2) Terrier, of medium range; (3) Talos, a long-range weapon. The 1950s ushered in the era of strategic and tactical bombardment vehicles. The Navy's first venture in this field was the air-breathing Regulus, which was installed aboard a few submarines and transferred on several cruisers and carriers. Polaris made Regulus obsolete. (The strategic fleet ballistic missile systems (Polaris/Poseidon/Trident) are discussed in chapter 21.)

Our first post-World War II ASW weapon was Alfa. Alfa improved on the hedgehog principle in that the hedgehog, despite its high velocity projectiles, normally did not "kill" a submarine but forced it to surface. Alfa fired a single 512-pound depth charge capable of sinking a submarine with one hit. Standoff capability was enhanced in the 1950s by ASROC (figure 18), which essentially is a rocket-assisted torpedo. It replaced the nuclear depth charge with which a surface ship can initiate attacks from ranges exceeding 10 miles. In the 1960s, the submarine received a similar boost in effectiveness with the advent of SUBROC, a long-range, underwater-launched weapon designed for use against submarines.

By 1960, the familiar quintuple torpedo tubes of World War II had given way to octuple mount configurations, predominantly the Mk 48 triple-tube nest described in chapter 15. Modern torpedoes include homing devices, as opposed to the straight-running types; some are wire-guided (maneuvering signals generated by shipboard electrical current).

As a partial reaction to Soviet possession of the atomic bomb and the ICBM race, missile and missile ships dominated budgetary considerations throughout the 1950s. The trend in construction culminated in several "double-ended" ships—missile launchers

and aft and little or no gun armament. By the end of the decade, the threat of nuclear conflagration diminished but there arose an increasing number of Communist-inspired "wars of national liberation." The Navy then was caught in a "gun gap" stemming from a decade of emphasis on missiles and missile systems.

Shortly before our active involvement in Vietnam, 5"/38s or 3"/50s were installed on the double-enders lacking gunpower. New missile ships were designed with a mixed armament of guns and missiles. Removed from scrapped ships, 5"/38 mounts were installed in new DEs and DEGs; those which were primarily missile-armed served as fleet escorts for carrier task forces where lack of gunpower would not be as significant. Rocket-equipped landing ships

(LSMRs) were recommissioned as inshore fire support ships for duty in Vietnam as were a few cruisers and the battleship *New Jersey*.

The lightweight 8"/55 gun was developed in the mid 1970s as a means of providing heavy gunfire support from acceptable standoff ranges. Because of its radical design, the lightweight 8"/55 gun can be installed on modern cruisers and destroyers. It is the smallest and lightest major-caliber gun mount in existence.

Weaponry on the whole has grown incredibly in complexity and sophistication during the past three decades. Consider the Polaris ballistic missile as an example. The FBM system first became operational in 1960. Within 10 years, we installed Poseidon, the fourth-generation missile. The range, accuracy,

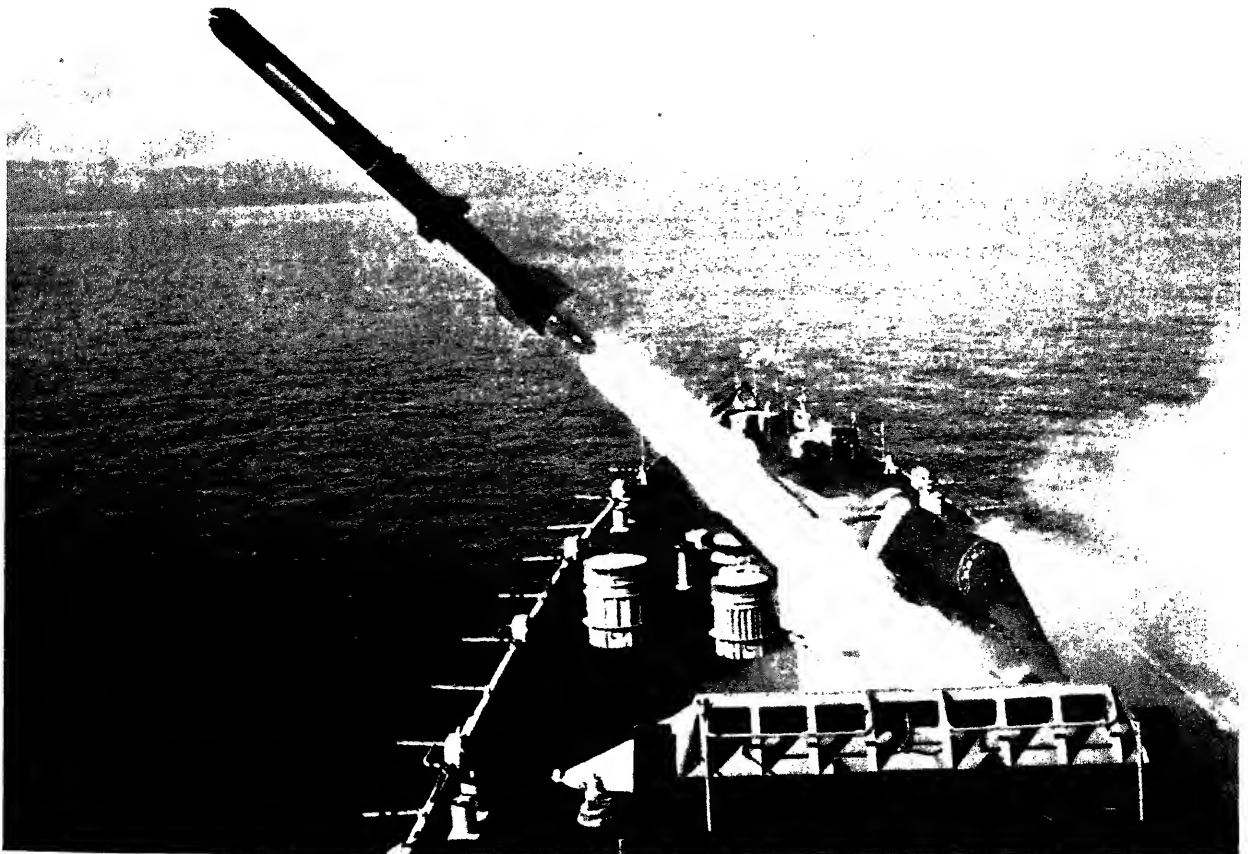


Figure 18-2.—Torpedo form of ASROC fired from launcher on deck.

and payload of each succeeding generation has been significantly greater than that of its predecessor. Trident, being introduced at the time of this writing, represents the ultimate in today's weapon technology.

In both antiair and antisubmarine warfare, the Navy's foremost challenge today, the trend toward greater sophistication will undoubtedly continue. But it has been proved that the Navy must maintain a balanced mixture of armament and weapons to cope with foreseen as well as unforeseen thrusts from diverse directions. Guns, guided missiles, and rockets, the latter often directed by visual spotting, will be with us for many years. The pride of the fleet today may be of little value in a different situation tomorrow. It has happened before.

DEVELOPMENT OF AIRBORNE WEAPONS

In the early days of airborne weaponry, weapons consisted of light hand-thrown bombs, machineguns, and sidearms. Through the 1920s and 1930s, as aircraft became faster and metal monoplanes replaced wood and cloth biplanes, more guns and heavier payloads became the pattern. During the 1940s, light machineguns, synchronized to fire through propellers, were replaced or augmented by wing-mounted machineguns or cannon. The Lewis 30-caliber machinegun was replaced by the Browning 50-caliber, which in turn was replaced in 1943 by the 20-mm aircraft gun. Bombloads increased from two 230-pound bombs in the H-class flying boats of World War I to an 8000-pound mix capability in the A-1 aircraft of 1945. During World War II, the aerial torpedo, under development since World War I, proved to be a formidable weapon.

Ordnance experts believe that superior firepower and tactics enabled U.S. aircraft to win practically every air battle in the Pacific during World War II. Although Japanese bombs and torpedoes were as destructive as our own, their aircraft guns could not match the 50-caliber Browning machinegun, and their aircraft were not equipped to carry as large a payload as our aircraft.

Although World War II ushered in the use of aircraft-launched rockets, depth charges, and glider bombs, it was the later advent of jet aircraft and guided missiles that resulted in the greatest innovations in aerial weaponry. The introduction of supersonic aircraft after the Korean action outmoded the concept of classical aerial dogfights with guns. The speed of these aircraft exceeds the limits of pilot reaction time at close quarters. Radical maneuvers impose unacceptable strains on airframes. These conditions, coupled with improved airborne radars and the need for longer range air defense, brought about development of the air-to-air missile. Contracts for the first missile, Sparrow, were let in 1951, followed shortly by those for Sidewinder.

Guided missiles have become increasingly important in aircraft armament. When two jet aircraft approach each other head-on, closing speed is between 1/2 and 1 mile per second. It is difficult even to see an enemy aircraft, and hitting it with conventional weapons is largely a matter of luck. An air-to-air missile not only can "lock-on" the hostile aircraft while it still is miles away, but it can pursue and hit the target despite the target's evasive maneuvers.

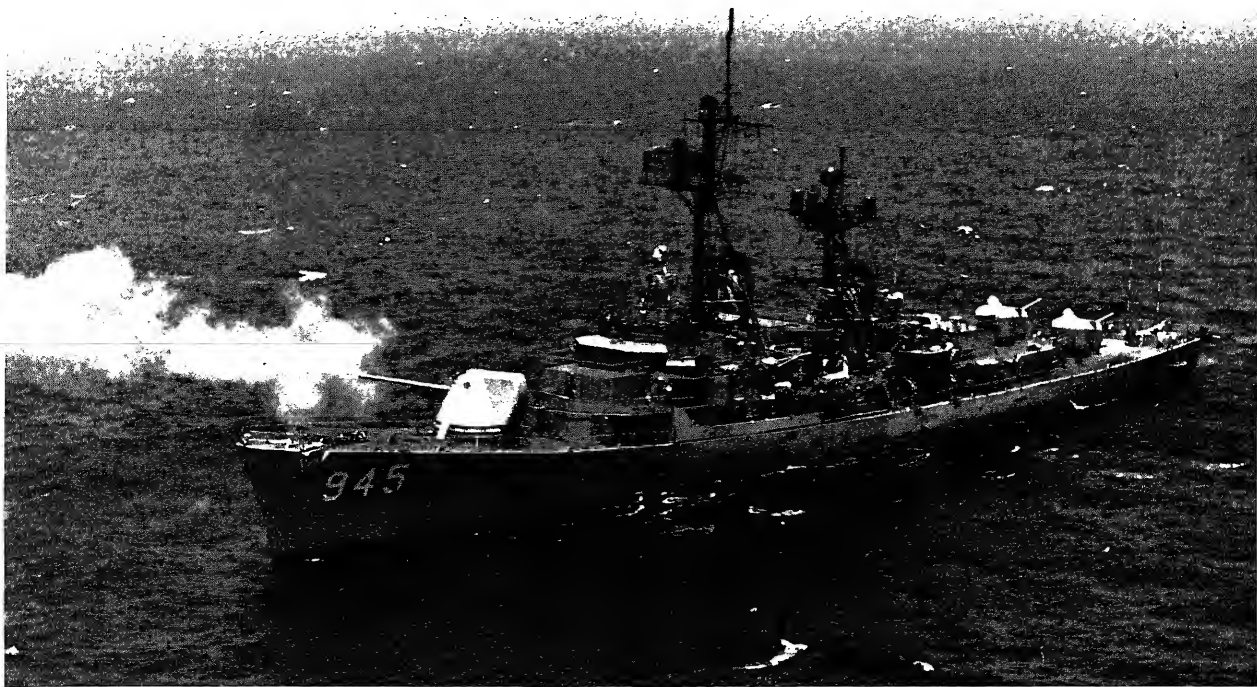
Naval aviators today have a variety of weapons available to complete any mission within the capability of their aircraft, including air defense, nuclear strikes, and counterinsurgency. Technological advances paved the way for improved versions of Sparrow and Sidewinder; air-to-ground missiles, such as Bullpup, have added punch to light attack missions; and Shrike includes devices to counter enemy radar defenses.

WEAPONS OF THE FLEET

The remainder of this chapter briefly describes weapons operational in the fleet today.

GUNS

Gun weapons systems are designed mainly for engaging air and surface targets (dual-purpose (DP) systems).



134.201

Figure 18-3.—Test firing of the Navy's 8-inch lightweight gun from the destroyer USS Hull.

8"/55

The 8"/55 lightweight gun is the only major caliber weapon in the fleet today. In the fully automatic mode, it can fire 12 rounds per minute with a crew of six. This gun has a maximum range of over 15 miles. Its lightweight construction makes it suitable for installation aboard cruisers, destroyers, and frigates (figure 18-3). While its primary mission is gunfire support, it can also be employed as an antiship weapon.

5"/54

The 5"/54 is an automatic DP gun carried by virtually all post-World War II DDs, DDGs, and CGs. Depending on the class of ship, the weapon may be disposed in 1, 2, 3, or 4 single mounts. Weight of the shell is 72 pounds, and effective range is 24,500 yards. Rate of fire is 40 rounds per minute.

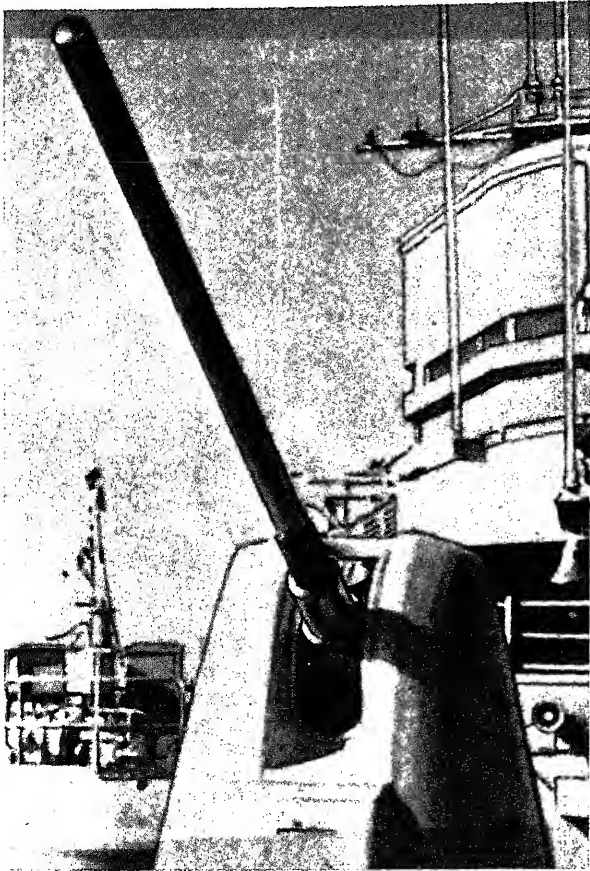
The Mk 45 version of this weapon (figure 18-4) is completely automatic. It is loaded, controlled, and fired from remote positions, thereby obviating the need for the guncrew to enter the mount.

5"/38

The 5"/38 semiautomatic DP gun was the mainstay of the U.S. Navy from 1939 until the late 1960s. Single or twin mounts made up the secondary batteries on early cruisers and battleships. Two or three twin mounts now constitute the main battery of many older DDs. For short periods, an efficient guncrew can get off 15 rounds per minute for single mounts and 30 rounds per minute for the twins. Weight of the projectile is 55 pounds; effective range is 18,000 yards.

3"/50

The dual-purpose, semiautomatic 3"/50 gun was planned during World War II when the need



134.202

Figure 18-4.—Mk 45 Mod 0 5"/54.

arose for a rapid-fire weapon having a larger explosive projectile than the 40-mm to combat suicide planes and dive bombers. It was not completed in time for wartime service, but it proved to be a very effective gun. Becoming standard throughout much of the fleet, it replaced the 40-mm twin and quadruple mounts on all combat ships. Open twin mounts were most common, although a few single mounts were installed.

Designed rate of fire is 45 rounds per minute per barrel; range is 14,200 yards. However, few of these mounts remain.

76-mm/62

The Oto Melara 76-mm/62-caliber, rapid-fire, dual-purpose gun mount was developed in the

late 1960s to combat increased aircraft target speeds and the cruise missile threat. Because of its light weight, it is suitable for installation on the new guided-missile frigates and missile hydrofoil boats. It is a water-cooled single mount with a rate of fire of 85 rounds per minute and a maximum range of 17,800 yards. The gunhouse is not manned and requires only three handlers to reload the magazine.

20-mm

The Phalanx close-in weapon system (CIWS) (figure 18-5) is a gun system designed as a ship's last-ditch weapon against an antiship cruise missile. The system is a complete unit containing search and tracking radar, a fire control system, a 20-mm gun, and a magazine. The unit is capable of automatically looking for and engaging missiles which "leak through" the other task force defenses. The mount housing, gun, and magazine have a high slew rate and provide 330° coverage. The gun is the Vulcan Gatling gun (20-mm), capable of firing 3000 rounds per minute; and it has a magazine capacity of 950 rounds. The entire system is bolted to the deck on shock mounts and requires only electric power, firemain cooling water, and gyro input from the ship.

ANTIAIR WARFARE (AAW) MISSILES

In an AAW operation, guided missiles are the second line of defense (the front line consists of aircraft). Surface-to-air antiaircraft guided missiles may be classified according to their effective ranges as—

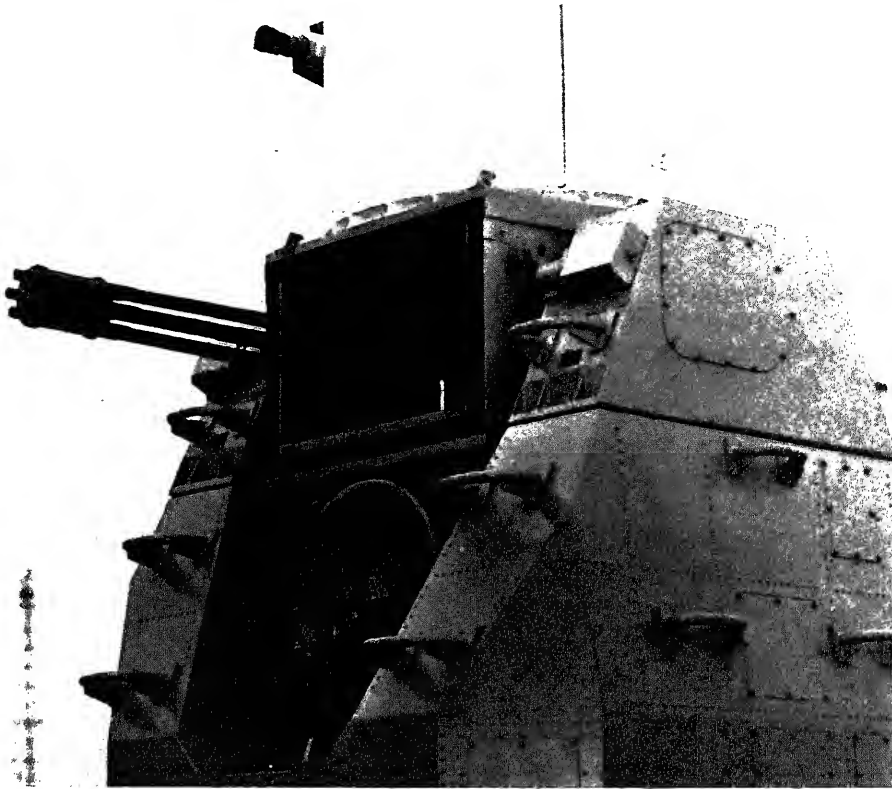
Short-range: greater than 5,000 yards

Medium-range: greater than 25,000 yards

Extended-range: greater than 60,000 yards

Long-range: greater than 100,000

The method of designating missiles and rockets by type is described briefly in chapter 15, as are missile guidance systems. You will



134.203

Figure 18-5.—A close-up view of the six-barrel Vulcan gun of the Navy's Phalanx close-in weapon system.

recall that the initial letter of a designation indicates the usual launch environment:

- A —air
- R —surface ship
- U —submarine

The second letter denotes mission:

- G —surface attack
- I —aerial intercept
- U —underwater attack

The last letter is the type symbol:

- M —missile
- R —rocket

There are many additional symbols, but those listed encompass the missiles and rockets described in the remainder of this chapter. See figure 18-6 for comparative sizes of the weapons carried aboard ship and aircraft.

Tartar (RIM)

Tartar measures 15 by 1.5 feet and weighs 1500 pounds. It is a solid-fuel missile with a range of 10 miles plus and a speed of Mach 2. The warhead is high explosive. Tartar is carried by DDGs, FFGs, and *Albany* (CG-10) class cruisers.

Terrier (RIM)

Terrier was the Navy's first operational AAW missile. Dimensions are 27 feet by 1 foot; weight

is 3000 pounds. It is a solid-fuel missile with a range exceeding 10 miles and a speed of Mach 2 plus. The warhead is nuclear or high explosive. Terrier was fitted in the *USS Boston* (CA-69) in 1955. Additionally, it is now installed in some CGs, the *USS Long Beach* (CGN-9) and *Kitty Hawk* class CVs.

Standard (RIM)

Numerous improvements were made in the Terrier and Tartar missiles. Because of this a standardization program was implemented. Out of this program came the Standard missile (SM) medium range (MR), and extended range (ER).

Based on the Tartar, the SM (MR) has a range in excess of 15 miles and a ceiling greater

than 50,000 feet. The SM (ER), based on the Terrier, has a range exceeding 30 miles and a ceiling greater than 60,000 feet. Although both range and ceiling were increased, the SM (MR) and (ER) are comparable in size and weight to the Tartar and Terrier respectively. It is anticipated that the Standard missile will phase out the Tartar and Terrier by 1980.

Talos (RIM)

Talos, our largest shipboard surface-to-air missile, is fitted in cruisers for long-range air defense. It has a length of 30 feet and a diameter of 30 inches. Weight is 7,000 pounds. It is launched by a solid-propellant booster; but unlike Tartar, Terrier, or Standard, it is

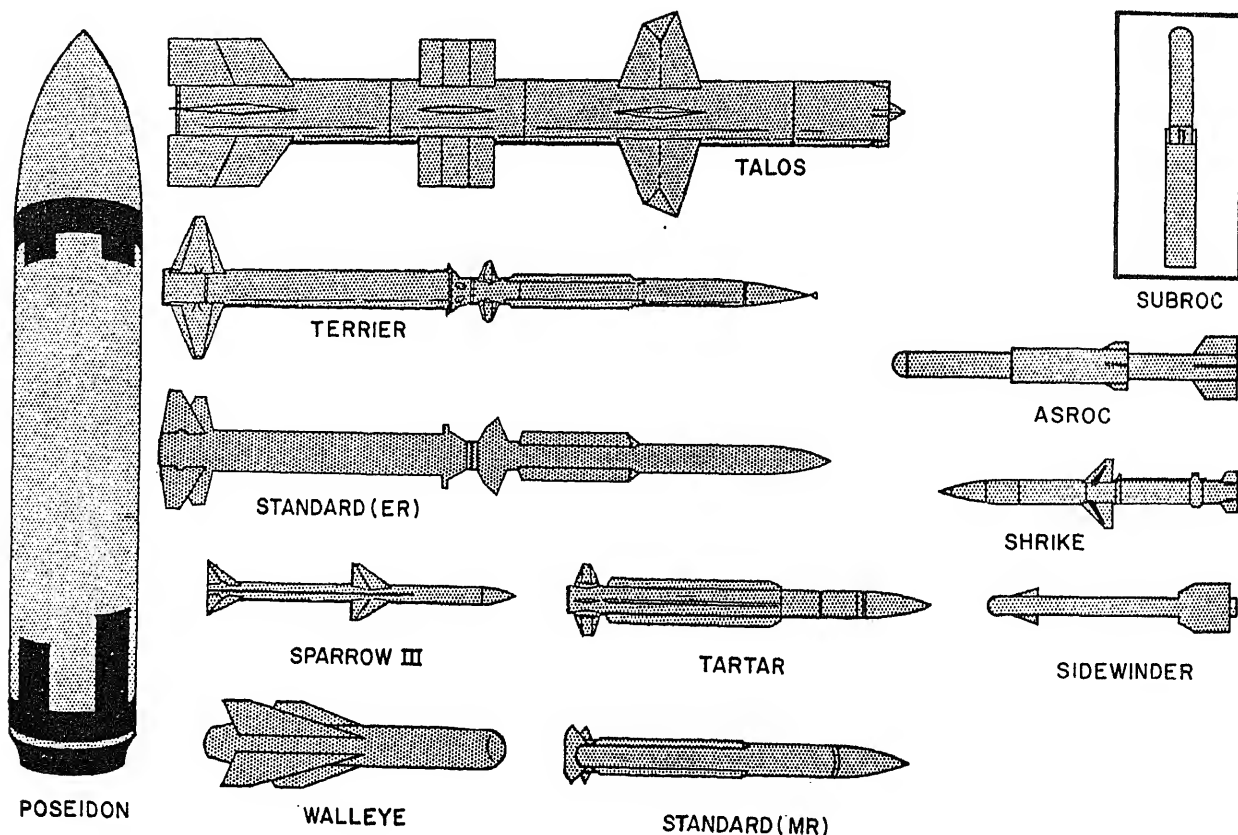


Figure 18-6.—Navy missiles and rockets; comparative sizes and silhouettes.

sustained in flight by a ramjet engine. Range exceeds 50 miles with a ceiling of more than 60,000 feet. The warhead may be nuclear or high explosive. Talos first went to sea in the *USS Galveston* (CLG-3). It is currently fitted in CGs and CGN-9. Although designed as an AAW missile, Talos can be used against surface targets.

Sea Sparrow (AIM)

The guided missile for the basic point defense (BPD) is the Sparrow III missile designated for air launch from fighter aircraft. For the basic point defense role, the missile has been modified by the substitution of special wings and tail fins which have less aerodynamic drag. The Sparrow III missile is a supersonic, boost-glide, semiactive homing missile. Tactical mission of the missile is to intercept and destroy enemy aircraft and guided missiles in point defense of individual surface vessels. It has a range in excess of 5000 yards, weighs 510 pounds, and has a diameter of 8 inches. It also has limited use against surface targets. The basic point defense missile is designated as guided-missile AIM-7 series Sparrow III. The first installation deployed aboard the *USS Enterprise* in 1967. It has also been installed in the *USS John F. Kennedy*; in the second nuclear-powered CV, *USS Nimitz*; and in the newest classes of frigates and destroyers.

ANTISUBMARINE WARFARE WEAPONS

The Navy's primary operational weapons are (1) antisubmarine rockets (ASROC), (2) submarine rockets (SUBROC), and (3) torpedoes.

ASROC (RUR)

The ASROC missile is a subsonic, shipboard-launched, solid-fuel, rocket-propelled, antisubmarine ballistic projectile. The missile has two configurations—one with a depth charge and one with a torpedo.

The purpose of ASROC is the destruction of submarines at long ranges. This objective is

achieved by delivery of a torpedo or nuclear depth charge through the air to a point in the water from which it can either attack under the most favorable circumstances or have the submarine within its lethal radius. The payload is a part of an unguided missile that is propelled by a rocket motor and stabilized by an airframe throughout its powered flight. Because of its standoff range, ASROC makes it possible for the ASW ship to launch its weapons before the submarine is aware that it is under attack.

ASROC launchers are installed in FFs, DDs, DDGs, and CGs. On most ships, the launcher is a boxlike device containing eight cells, as in figure 18-7, each containing a missile. Some ships carry a dual Terrier/ASROC launcher that eliminates the need for separate magazines and conserves deck space.

SUBROC (UUM)

The SUBROC, an antisubmarine rocket with a nuclear warhead, is launched from a submarine torpedo tube by conventional methods. After clearing the submarine, a rocket motor ignites and propels the weapon upward and out of the water as in figure 18-8. An inertial guidance system then directs SUBROC toward its target. At a predetermined range, the motor and depth bomb separate, the latter continuing toward the target area. Upon reentry into the water, the bomb sinks to a preset depth and the warhead explodes. The target may be a surface ship as well as a submarine. The SUBROC system can fire missiles in rapid succession, an important defense against enemy wolfpack tactics.

SUBROC systems are installed in the *Permit*, *Tullibee*, *Sturgeon*, and *Los Angeles* class SSNs.

Torpedoes

A torpedo can be launched from submarines, surface ships, or aircraft. The torpedo guides itself toward its target either by devices installed to control its depth and direction according to a preset plan or as influenced by an outside source.

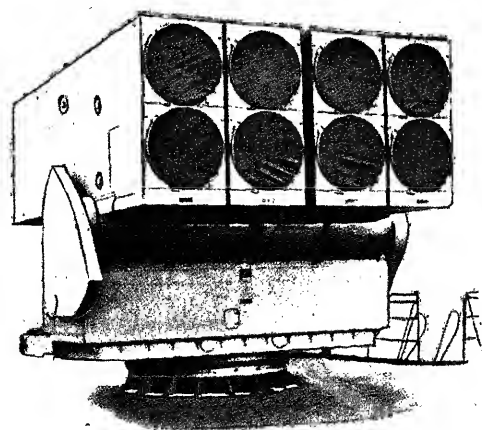
This discussion is confined to torpedoes that are designed as antisubmarine weapons. Most of these weapons contain acoustic homing devices.

MK 37 TORPEDO.—The Mk 37, launched only from submarines, is a long-range, deep-diving, electrically driven torpedo. It comes in two modifications (Mods 2 and 3). Standard diameter is 19 inches; length varies between 11 and 14.5 feet; weight varies between 1430 and 1700 pounds. Mod 2 is wire-guided, making it invulnerable to several enemy countermeasures.

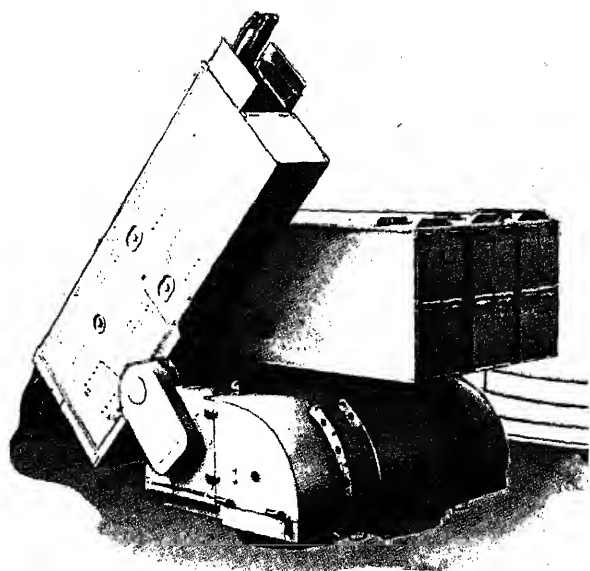
MK 44 TORPEDO.—The Mk 44 is a lightweight (somewhat over 400 pounds), electrically driven torpedo. It can be launched from shipboard and by many aircraft, and is the torpedo payload for ASROC. Length is about 8 feet, diameter is 12.75 inches. Guidance is active homing coupled to a search pattern.

MK 46 TORPEDO.—The Mk 46 torpedo is the successor to the Mk 44. The principal difference between the two is the improved propulsive power of the Mk 46, which gives it greater speed, range, and depth capabilities than the Mk 44. The Mk 46 is 8.5 feet long, has a 12.75-inch diameter, and weighs 568 pounds.

MK 48 TORPEDO.—The Mk 48 is a high-speed, deep-running, long-range weapon used against submarines and surface ships. The weapon can be launched from either a submarine or surface craft. Both acoustic and nonacoustic operating modes are available. The torpedo may be operated in the acoustic mode when used against surface or submerged targets. Nonacoustic operation may be used against surface targets only.



LEFT REAR



RIGHT FRONT

Mines

Like torpedoes, mines can be planted by surface ships, submarines, and aircraft. Presently, only aircraft and submarines are utilized for planting mines. Planting by aircraft is feasible only when great secrecy is not involved. Submarine-laid mines can be planted in secrecy at great distances from home ports; they can be fired into harbors in a torpedo configuration or merely set adrift in shipping lanes.

Operational mines are discussed at length in chapter 21. Aircraft-planted mines are covered in the next portion of this chapter.

ANTISHIP WARFARE MISSILES (CRUISE)

Since World War II, the U.S. Navy has relied upon carrier aircraft to maintain sea control. Other navies, not having the money for carriers,

15.106

Figure 18-7.—The ASROC cellular launcher.

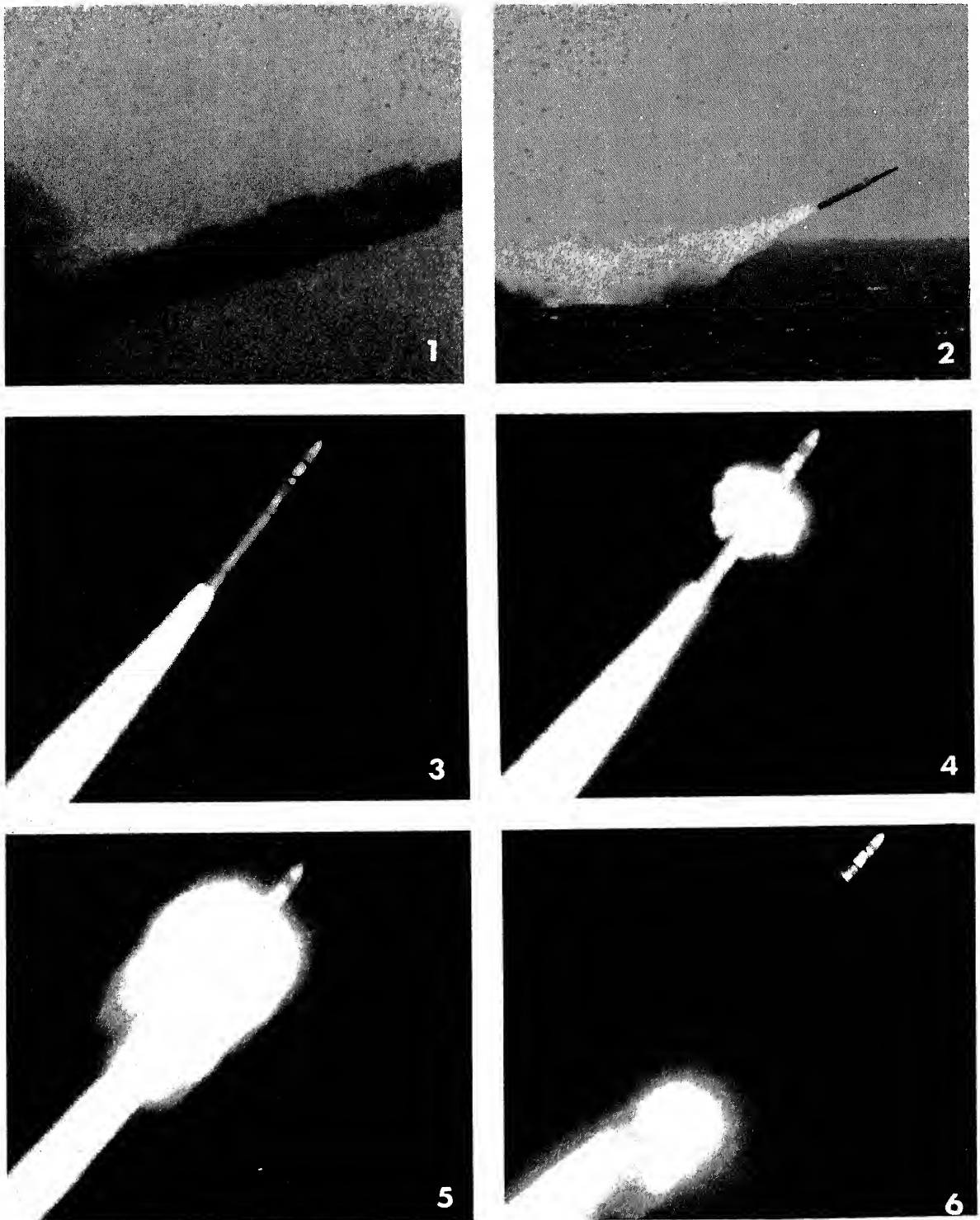


Figure 18-8.—The submarine rocket is an ASW weapon designed for underwater launching.

developed antiship missiles. These missiles were first used successfully by the Egyptians to sink the Israeli destroyer *Elath* in 1967. This battle opened a new era in naval warfare. Any nation, with a relatively modest investment, could successfully challenge the most powerful naval forces.

The United States did not start development of a similar weapon until 1971 when it became apparent that U.S. ships might have to engage other ships equipped with antiship missiles without the benefit of an equal weapon. This led to the development of the Harpoon cruise missile.

Harpoon Missile

The Harpoon missile is an antiship missile designed to be launched from surface ships, submarines, and aircraft, using existing launching and weapons control equipments. The missile features beyond-the-horizon range, a low-level cruise trajectory (hence, the name cruise), active guidance, counter-countermeasures, and a large payload. The missile is 15 feet long and 13 inches in diameter, and weighs 1400 pounds. It has a high-explosive warhead and is powered by an air-breathing turbojet engine. For shipboard launch, a solid-propellant rocket booster is added. The missile utilizes active radar terminal homing.

Long-Range Cruise Missile

Under development is a long-range cruise missile to complement Harpoon. The new missile will have a capability for employment against ship and shore targets, will have both conventional and nuclear warhead configurations, and will be designed for surface platforms, submarine torpedo tube launch, and use on aircraft with both warheads. The range of the tactical version will be up to 300 nautical miles, while the strategic version may be employed at ranges of 1500 miles.

AIRBORNE WEAPONS

In today's high-performance aircraft, the trend is toward versatility by means of a

multiple-stores capability. That is, rockets, bombs, missiles, and guns (in some aircraft) are mounted in pods that permit interchangeability of armament. Pods provide a variable choice of weapons to complete assigned missions.

20-MM GUNS

Although 20-mm aircraft guns are practically obsolete for air-to-air combat, they still are the most effective weapons under certain tactical conditions. There are three types—one pod mounted, the other two mounted internally.

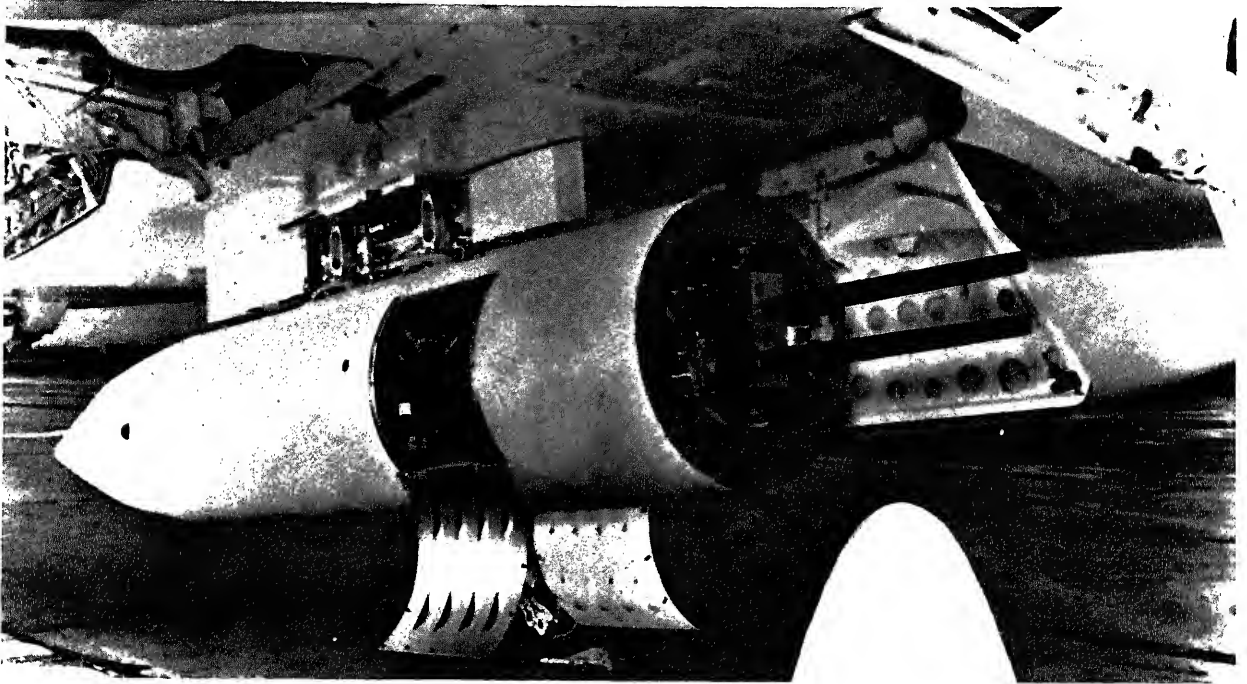
The pod-mounted gun (figure 18-9), located on the centerline of the pod, has two over-and-under barrels with a combined firing rate of some 4000 rounds per minute. An aircraft carrying the normal load of three pods thus has a capability of firing 200 rounds per second. One of the internal 20-mm guns is a conventional single-barrel. It can be mounted singly, usually one near the base of each wing; or several guns may be grouped within the fuselage (the F-8, for example, has a quadruple fuselage mounting). Rate of fire is 1000 rounds per minute for each gun. The other internally mounted gun, such as on the A7E aircraft, consists of one six-barrel M61A1 20-mm gun with an ammunition drum that is electrically controlled and hydraulically operated. The gun fires at a rate of 6000 rounds per minute in the GUNHI position and 4000 rounds per minute in the GUNLOW position.

AIR-TO-AIR MISSILES (AIMs)

Missile research is continuously producing changes in the missile field. For this reason, missiles discussed here and in the following section, although operational at the time of the preparation of this text, may be obsolete by the time of reading.

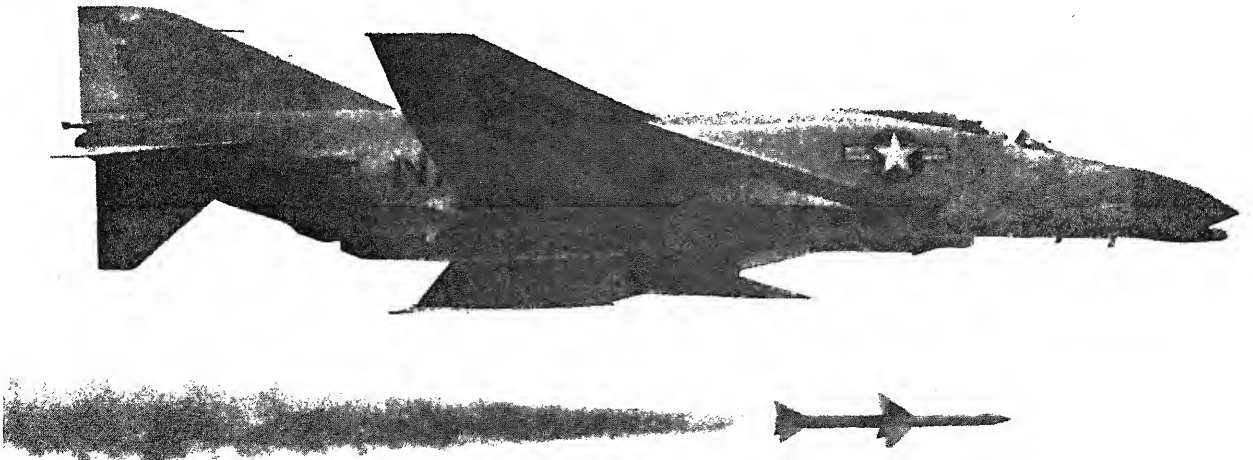
Sparrow III

Sparrow III, which also can be employed as a surface-to-air weapon, is the third generation of a family of solid-fueled, supersonic missiles



134.163

Figure 18-9.—Pod-mounted 20-mm aircraft gun. Quick-disconnect barrels can be removed without taking the gun out of the pod. Quick-release doors provide access for loading the magazine and for maintenance.



used by carrier and land-based aircraft for fleet and continental air defense. It is a radar homing missile with a range exceeding 6 miles; its speed is Mach 2.5; the warhead is 60 pounds of high explosive; and its weight is 400 pounds. Dimensions are 12 feet by 9 inches. The combined capabilities of the missile and its armament and control system permit an attack on an enemy aircraft (figure 18-10) from any direction in all types of weather.

Sidewinder

Sidewinder was the Nation's first passive infrared homing AIM. Infrared homers are heat seekers and must be fired from a tail aspect to

detect heat from jet exhausts. Early models are not very effective in bad weather, and they can be launched only from subsonic aircraft. Later models can be fired from Mach 2 aircraft. (See figure 18-11.)

Characteristics vary somewhat between modifications, but in general the Sidewinder is about 9 feet long by 5 inches in diameter, weighs from 160 to 210 pounds, has a speed of Mach 2.5, and has a range of approximately 2 miles.

Phoenix

The Phoenix AIM-54 (figure 18-12) is utilized with the F-14 Tomcat aircraft. The

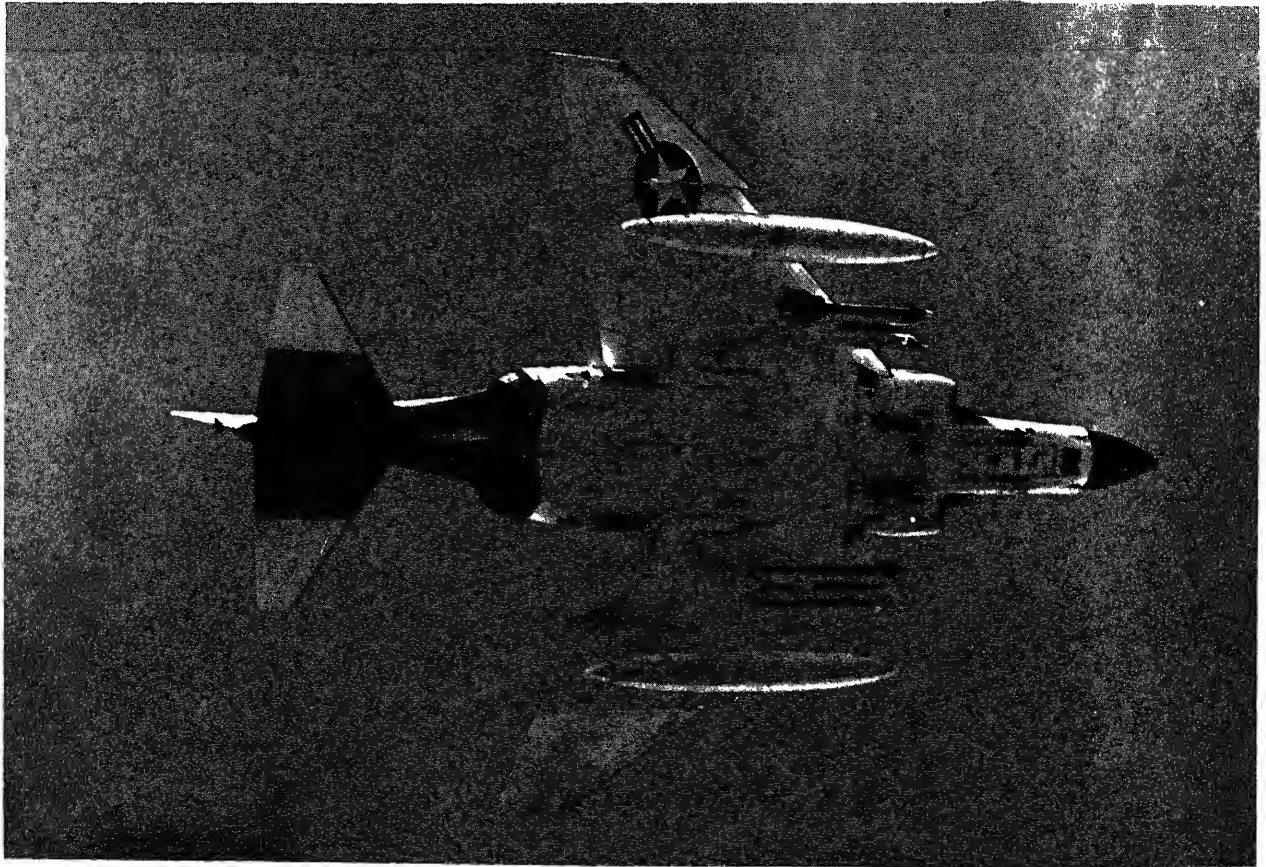


Figure 18-11.—An F-4 aircraft with its hardware mix of four Sparrow III (under fuselage) and four Sidewinder missiles.

3.111

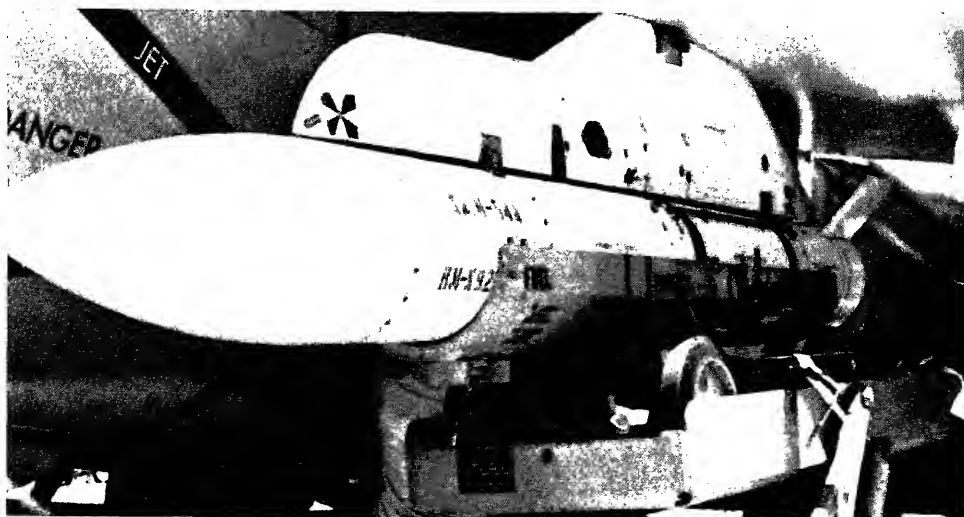


Figure 18-12.—The Phoenix AIM-54 air intercept missile.

134.204

missile is approximately 156 inches long and 15 inches in diameter. It weighs 1000 pounds and employs a single-stage solid-propellant motor. The Phoenix has a multiple missile tracking and launch capability—the interceptor aircraft can be armed with six Phoenix missiles which can be launched from the aircraft at six separate targets in rapid sequence. The missile is designed to operate in an electronic countermeasures environment where its multiple guidance phases and multiple control frequencies make it effective against all predicted ECM techniques. Much of the detailed information on the Phoenix is classified and, therefore, will not be covered in this manual.

AIR-TO-GROUND MISSILES (AGMs)

The AGMs discussed below are operational at the time of this writing.

Shrike

The Shrike AGM-45 is an antiradiation missile (ARM) weapon system designed to destroy or neutralize enemy radars. It is compatible with all currently operational Navy

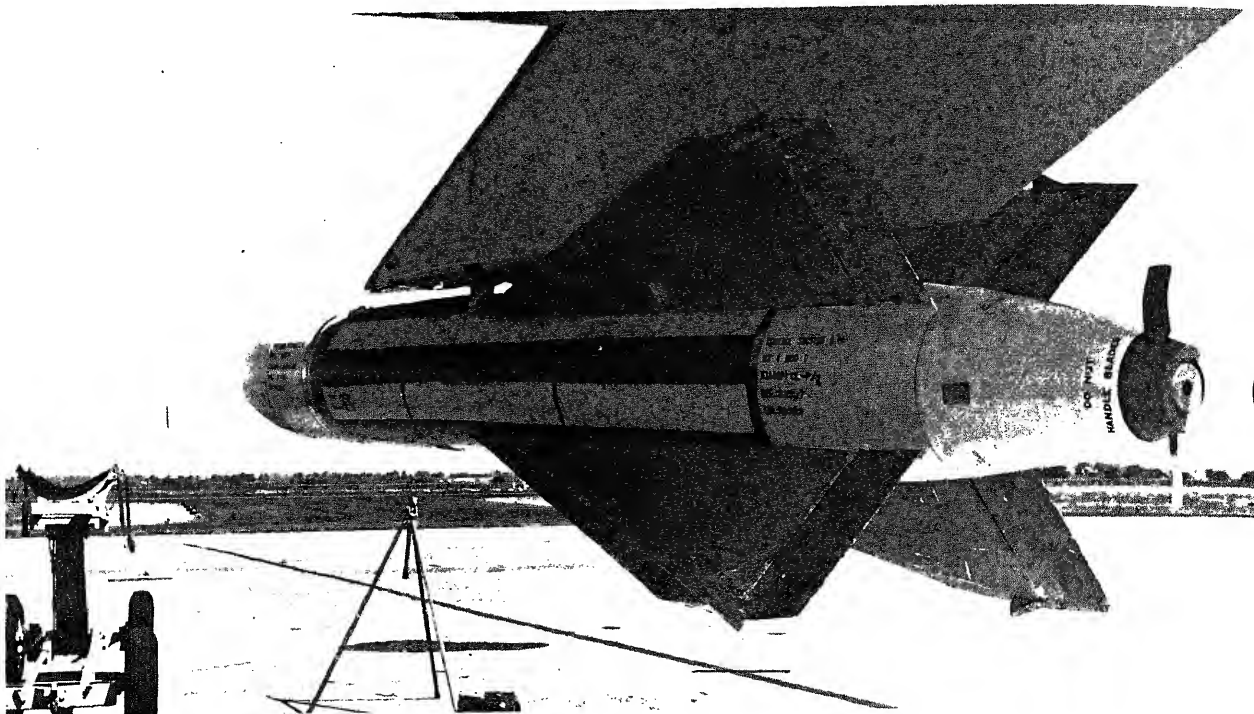
attack aircraft. Shrike is extremely easy to handle and requires only a 3-minute shipboard checkout procedure.

Standard ARM

The AGM-78 series of the standard ARM is a supersonic, air-launched guided missile that is employed against surface targets which radiate electromagnetic energy. The missile employs a passive-homing guidance system to develop guidance intelligence from the energy radiated by the target. The missile control system is used in the guidance intelligence in conjunction with the information from missile instruments and prelaunch instructions from the aircraft to control defections of four aerodynamic control surfaces. The control surface defections steer the missile on an optimum course to target intercept.

Walleye

The Mk 1 Mod 0 Walleye (figure 18-13), although not classified as a guided missile, is briefly discussed in this chapter as it contains a guidance system and externally mounted control surfaces. The weapon itself contains no



221.47

Figure 18-13.—The Walleye guided weapon.

propulsion system and is launched as a free-falling bomb. A closed-circuit television system in the nose of the weapon provides a picture of the target area and displays this information on the aircraft radar indicator. This projected picture assists the pilot in alignment and lock-on of the weapon on a selected target within the area. After launch, the weapon is self-controlled and guided by an internal automatic tracking system.

The Walleye weapon is approximately 136 inches in length, 15 inches in diameter, and weighs 1100 pounds.

Condor

The new Condor missile system, when it becomes operational, will provide attack aircraft with a flexible capability to destroy tactical targets while the aircraft remains outside the range of enemy guns and most missile defenses. It is expected to have a range of about 40 miles and interchangeable nuclear and conventional warheads.

AIRCRAFT ROCKETS

The Navy currently uses two air-launched rockets: the 2.75- and the 5.0-inch-diameter rocket. The 2.75-inch rocket uses a variety of warheads, has folding fins, and is nicknamed the Mighty Mouse (figure 18-14). The 5-inch rocket also uses a variety of warheads, incorporates either folding fins or wraparound fins, and is called Zuni (figure 18-15). Both of these types of rockets are used either in air-to-ground or air-to-air missions.

Rocket motors currently used in the 2.75-inch and 5.0-inch air-launched rockets employ solid-propellant motors. The combination of the warhead, fuze, and motor give the Mighty Mouse a weight of approximately 20 pounds, while the Zuni weighs approximately 140 pounds.

Warheads used in these rockets include—

1. HIGH-EXPLOSIVE FRAGMENTATION (HE-FRAG) WARHEADS. These warheads are designed to be effective against personnel and

lightly armored targets. The warhead explosive is detonated by a point detonating or VT fuze. Upon detonation, a large quantity of metal fragments is accelerated to a high velocity. Target damage is caused by impact of these fragments.

2. **HIGH-EXPLOSIVE ANTI-TANK (HEAT) WARHEADS.** Heat warheads are designed to be effective against armored targets such as tanks, bunkers, armored vehicles, etc. The warheads contain a shaped charge which, when detonated, produces a high-energy jet that penetrates the armored targets. This warhead uses a point detonating fuze.

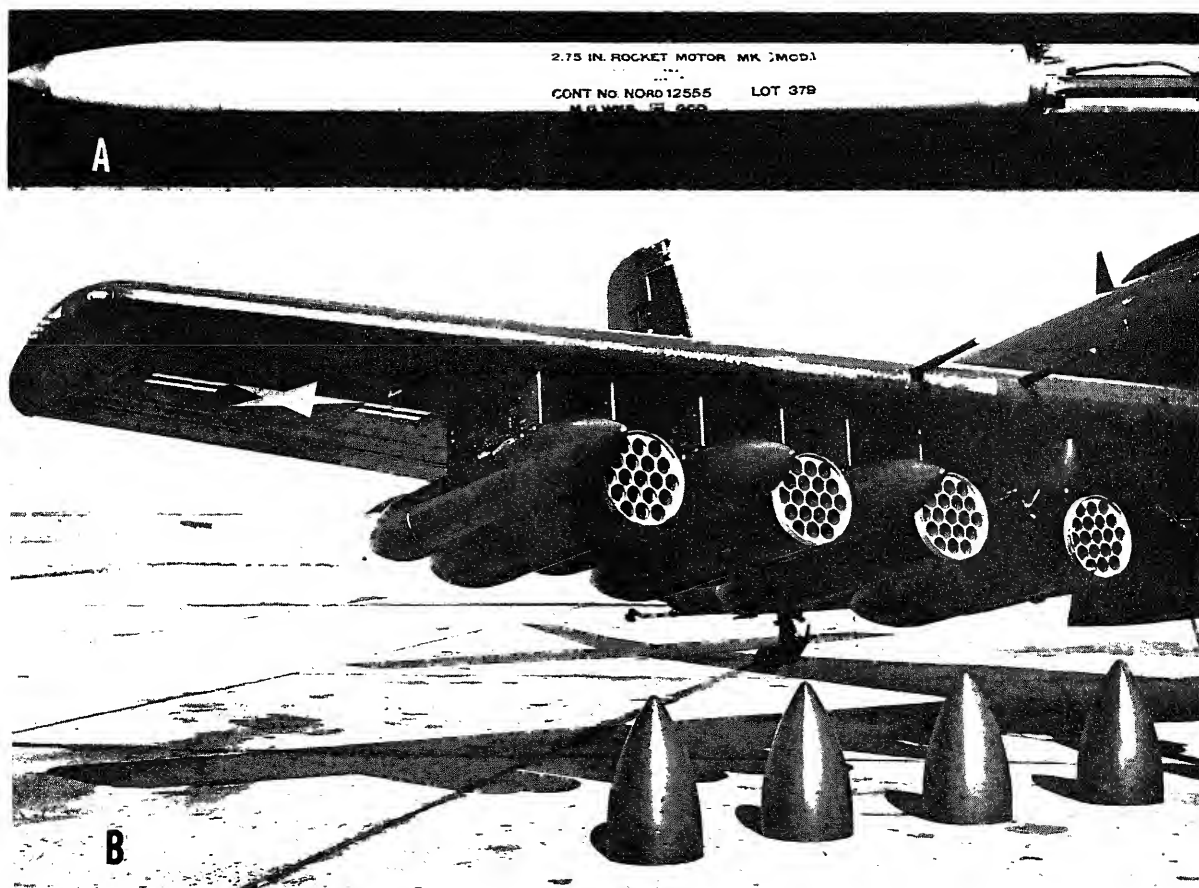
3. **HIGH-EXPLOSIVE ANTI-TANK/ANTI-PERSONNEL (AT/APERS) WARHEADS.** These

warheads combine the effectiveness of the fragmentation warhead with the HEAT warhead.

4. **HIGH-EXPLOSIVE GENERAL-PURPOSE (GP) WARHEADS.** The GP warheads produce fragments and may be fuzed for contact, proximity, or delayed detonation.

5. **FLECHETTE WARHEADS.** Flechette warheads are designed to be effective against personnel and lightly armored targets. These warheads contain a large number of small arrow-shaped projectiles. A small explosive charge in the warhead dispenses the flechettes after rocket motor burnout. Target damage is caused by impact of the high-velocity flechettes.

6. **SMOKE WARHEADS.** Smoke warheads are designed to produce a volume of heavy



110.98

Figure 18-14.—A. Mighty Mouse 2.75-inch FFAR (folding-fin aircraft rocket). B. Mighty Mouse 7-round and 19-round (with nose cones removed) launchers.

smoke for target marking. The warhead contains a burster tube of explosive which bursts the walls of the warhead and disperses the smoke. These warheads are designated SMOKE, followed by the abbreviation for the smoke producing agent it contains; for example, WP for white phosphorus, or PWP for plasticized white phosphorus.

7. **FLARE WARHEADS.** Flare warheads are designed to provide illumination for tactical operations. These warheads consist, basically, of a delay action fuze, illuminating candle, and parachute assembly.

8. **PRACTICE WARHEADS.** Practice warheads are either dummy configurations or

inert-loaded service warheads in which the weight and placement of an inert filler gives the practice warhead the same ballistic characteristics as those of the explosive-loaded service warhead.

Rocket fuzes are usually classified by their location in the warhead: that is, nose fuze or base fuze. They may be further classified by mode of operation, such as impact firing, mechanical time, acceleration and deceleration, or proximity. All fuzes contain safety/arming devices to prevent detonation during normal transporting, handling, and launching of the complete rocket. Inert fuzes are available for drill and display.

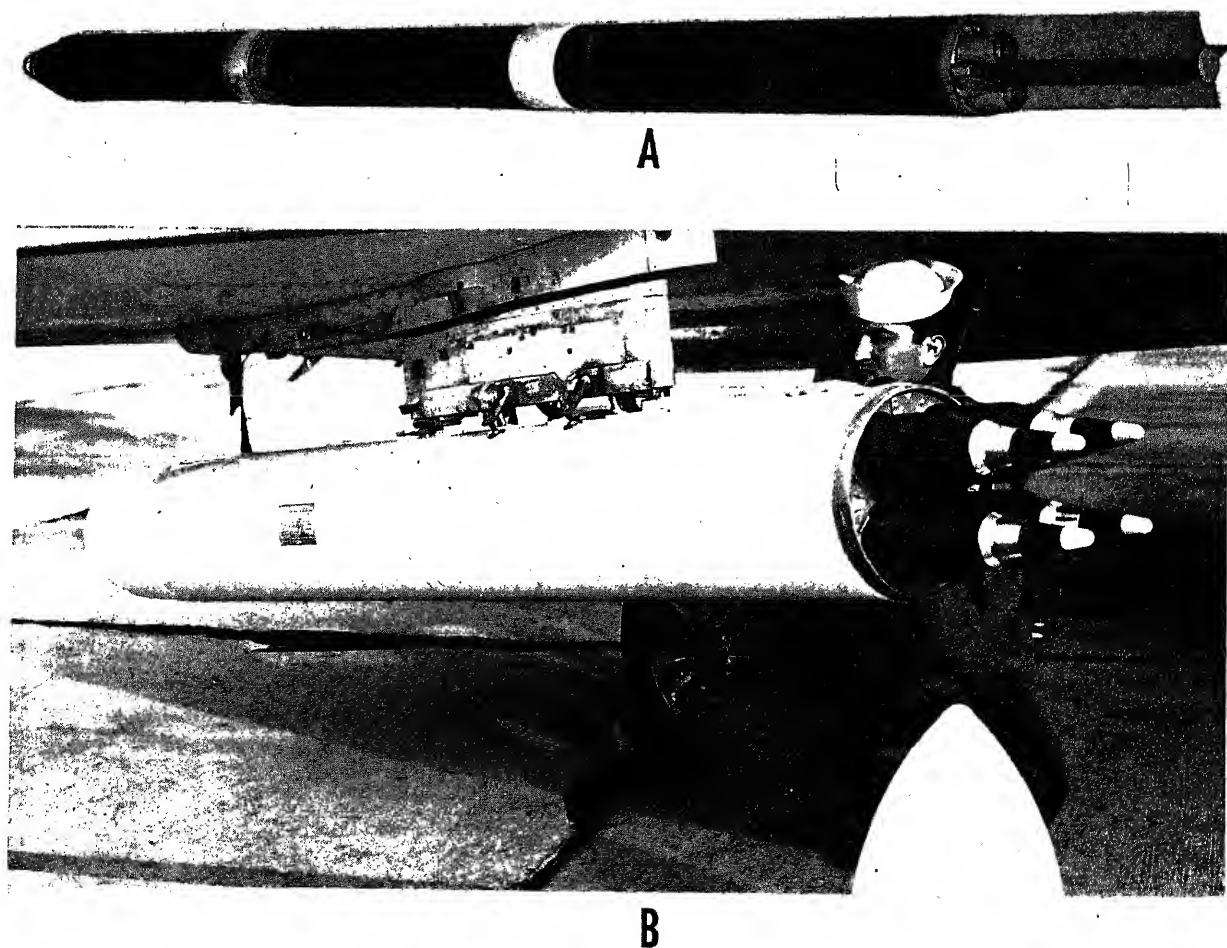


Figure 18-15.—A. Zuni 5-inch HVAR (high-velocity aircraft rocket). B. Zuni rockets pod-mounted in groups of four.

110.100

AIRCRAFT BOMBS

Conventional aircraft bombs are designed for release over enemy targets to reduce and neutralize their war potential by destructive explosion, fire, or gases. The efficient destruction of various types of targets requires bombs that vary widely in size, construction, content, and purpose.

Aircraft bombs are classified according to filler (payload) as follows:

1. High-explosive (HE)
2. Fire
3. Drill
4. Practice
5. Chemical

High-explosive bombs are in turn classified according to use as—

1. General-purpose (GP)
2. Low-drag general-purpose
3. Semi-armor-piercing (SAP)
4. Fragmentation (Frag)
5. Aircraft depth (AD)

Bomb construction varies with the type of bomb and the amount of explosive it contains. Its effectiveness often depends on the ability to penetrate an armored target (e.g., deck armor of a cruiser) before detonation. This type of bomb must have a thick, heavy case and a consequent reduction in explosive-carrying capacity. On the other hand, there are occasions when penetration is relatively unimportant because the bomb need merely be dropped close to its target, just as an AAW projectile armed with a VT fuze need not score a direct hit to cause damage. An example of this type of bomb is one dropped on a cluster or row of buildings to destroy them by blast effect. A bomb for such purposes has thin walls that allow room for a large load of explosive. The percentage of filler weight compared to total bomb weight is known as the loading factor. If a 1000-pound bomb

contains 300 pounds of explosive, it has a loading factor of 30%.

Figure 18-16 shows relative sizes of several bombs discussed in this section. Figure 18-17 is a cutaway view of a high-explosive bomb assembled and ready for loading.

GP Bombs

General-purpose bombs are employed in the majority of bombing operations. The GP bomb cases are relatively light, the explosive filler making up about 50% of bomb weight. Bombs range in size from 100 pounds to nearly 1 ton.

Low-Drag GP Bombs

Streamlined low-drag GP bombs are designed to increase aerodynamic performance and bombing accuracy when used with high-speed aircraft. The majority of new bombs are of this type; all are VT fuzed. They have thicker sidewalls and nose sections than standard GP bombs. Low-drag GPs are manufactured in four sizes weighing from 260 to 1970 pounds. Loading factors vary from 40% to about 48%.

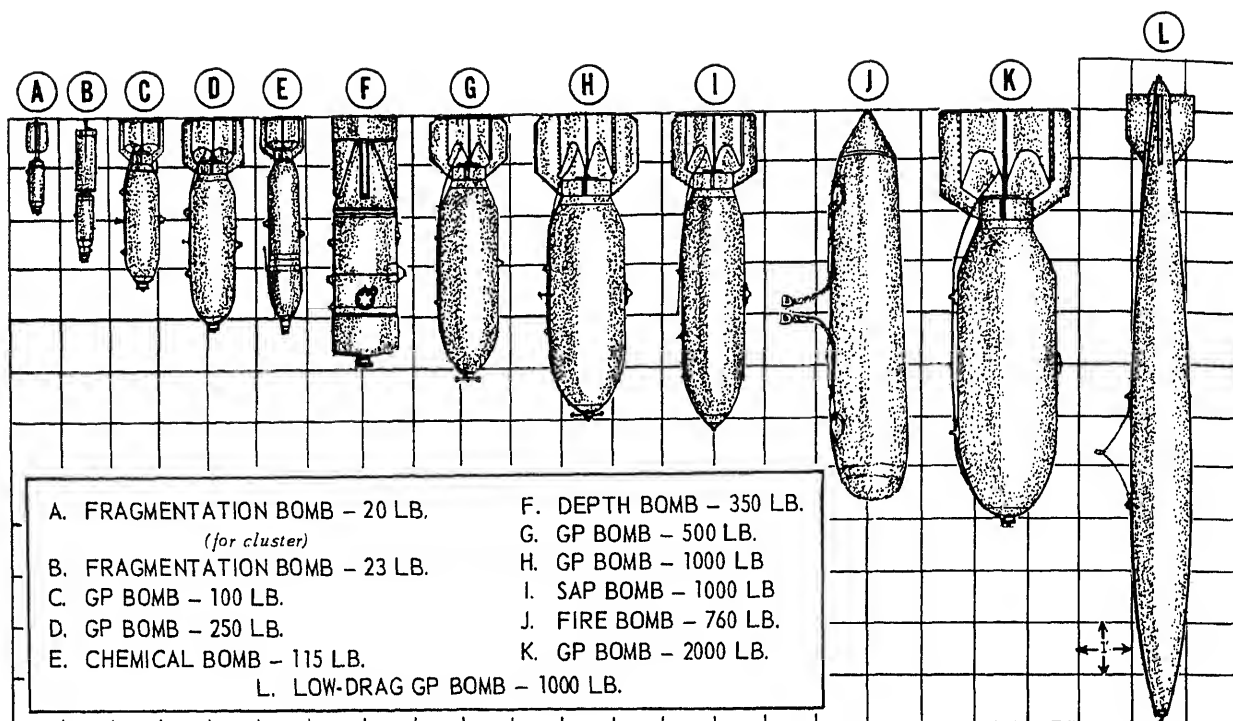
SAP Bombs

A semi-armor-piercing bomb has a somewhat thicker case with a correspondingly smaller amount of filler (loading factor is 30%) than the GP bomb. The thicker body gives greater penetration than a GP of comparable weight. The bomb weighs 1042 pounds.

Frag Bombs

Fragmentation bombs, fuzed to explode before penetration, contain very little filler, they cause destruction mainly by spraying the surrounding area with hundreds of case fragments. They are designed for the destruction or disablement of personnel and light targets such as motor vehicles and ground aircraft.

Frag bombs range in sizes from 4 to 260 pounds. Smaller bombs usually are dropped in clusters.



3.119

Figure 18-16.—Comparative sizes of some conventional bombs.

AD Bombs

Although the aircraft depth bomb is employed mainly against underwater targets (armed to explode at a preset depth), it has a secondary use as a demolition (impact) bomb. The AD bomb has a flat nose to prevent ricochet when dropped into water. The current AD bomb weighs 350 pounds and, because of its light case, has a loading factor of 70%.

Fire Bombs

All explosive bombs cause fires if conditions are favorable; a fire bomb, however, is loaded with material that cannot be extinguished by ordinary means once it starts to burn.

Fire bombs are of two types. Those designed for use against light, flammable targets are "scatter" bombs that contain a mixture of oil or gasoline and a thickening or gelling agent. This filler, called oil gel, is ignited and scattered by a

small black powder charge when the bomb impacts. The gel is a thick material somewhat like rubber cement, and it adheres to the sides of frame structures, tents, and the like, setting them afire.

The ignition of more substantial targets, such as well-constructed buildings, is accomplished by dropping an "intensive" fire bomb filled with a mixture of aluminum powder and iron oxide (thermate or thermite), which burns at temperatures approximating the melting point of steel.

Fire bombs range in filled weight between 500 and 900 pounds. They carry between 75 and 112 gallons of filler.

Chemical Bombs

Chemical gas bombs (GBs) are designed for antipersonnel attack. Some bombs contain casualty agents that incapacitate or perhaps kill personnel; others contain harassing agents such

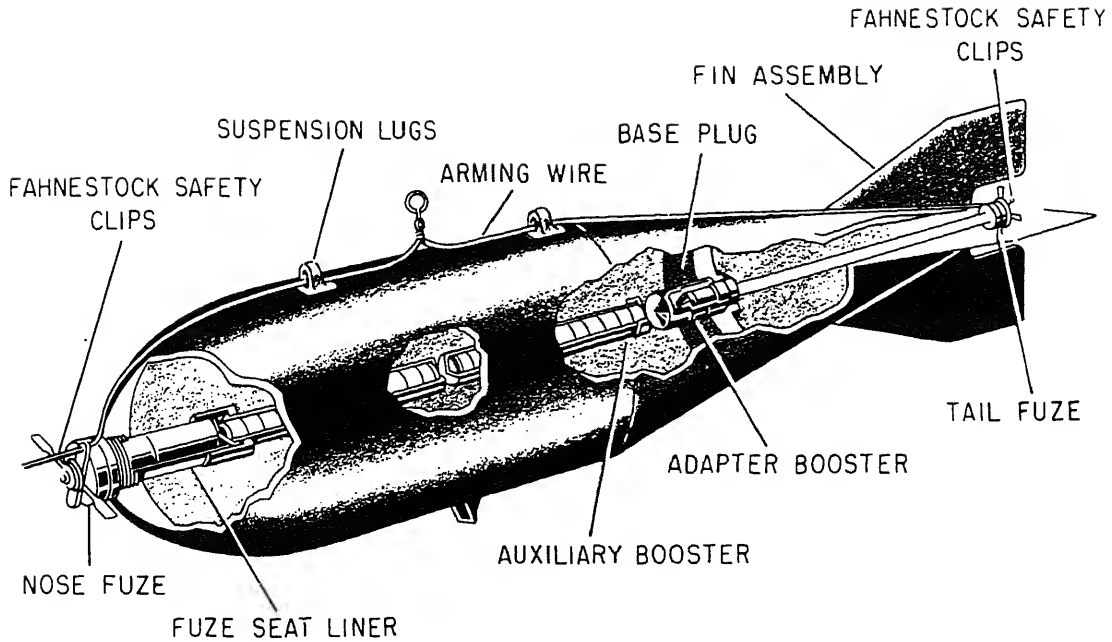


Figure 18-17.—Conventional bomb components.

53.152

as tear or vomiting gases, which are of less potency but force the enemy to use masks and otherwise retard his operations. Bomb weights run from 115 to 1000 pounds. Chemical bombs can be fuzed to explode on impact or to provide an aerial blast.

Smoke and Incendiary Bombs

Smoke bombs are generally used for screening purposes to conceal shore areas and movements of ships and troops. Their cases are of thin construction. The bomb shatters on impact, dispersing the smoke agent (perhaps white phosphorus) over a circular area of 30 to 50 yards in radius. Atmospheric oxygen then ignites the filler, causing it to burn and produce smoke. An effective white smokescreen may last up to 5 minutes. With the 100-pound bomb, the same body can be used either as a smoke or incendiary bomb.

Incendiary bombs are designed for use against combustible land targets where numerous fires may cause serious damage, and

over water to ignite oil slicks. For land targets, the incendiary is, for practical purposes, the same as a fire bomb with perhaps some difference in type of filler. When an incendiary equipped with a sodium igniter impacts in water, it bursts and scatters burning gobs of gel containing particles of sodium. The gel floats and the sodium ignites spontaneously upon contact with water, ensuring ignition of flammable oil slicks that may be the result of damaged ships or oil storage tanks in or near a harbor. The burning gel can produce temperatures up to 675°C for as long as 8 minutes.

Practice Bombs

The use of practice bombs makes it possible to train crews more economically and safely than can be done with live bombs. As the name indicates, a practice bomb simulates the ballistic properties of service-type bombs for target practice.

These bombs are available in several versions. The 25-pounder is designed for either airburst or

impact firing. The 21-inch long, 56-pound model resembles the low-drag GP in configuration—slender body and pointed nose. It also has a dual capability for airburst or impact firing. The 5-pound bomb, designed for low-altitude drops, is 18.75 inches in length and 4 inches in diameter.

Full-scale practice bombs have approximately the same dimensions as currently used GPs. They are shipped empty and before use are filled with wet sand or water, depending on the type of weapon simulated. When filled, they compare in weight with service bombs of equivalent type.

AIR-LAUNCHED TORPEDOES

Aircraft-launched torpedoes are acoustic-homing antisubmarine weapons. They are parachute retarded and powered by self-contained propulsion systems.

Currently, there are two types of aircraft torpedoes operational, Mk 44 and 46. They may be mounted externally or internally. Mk 44 is 8.5 feet long, has a 12.75-inch diameter, and weighs 433 pounds, varying with modification.

AIRCRAFT MINES

An important advantage of aircraft minelaying is that aircraft can drop mines into enemy-controlled harbors and coastal waters that cannot be mined by other means. A second advantage is that they can replenish a minefield without danger from previously laid mines.

Most aircraft mining is done at night, drops being controlled visually or by radar from low altitudes. Total secrecy is, of course, out of the question; but daylight mining would simplify the enemy's defensive and sweeping operations.

Most aircraft mines are parachute retarded, resulting in a trajectory differing from that of a bomb. The mine falls more slowly and, when dropped at high altitudes, its drift due to wind velocity must be taken into account in arriving at the drop point. To ensure opening of the parachute and proper water-entry velocity of the mine, recommended aircraft planting altitude is not less than 200 feet.

In configuration, most air-launched mines are similar to aircraft bombs, i.e., cylindrical in

shape with a tapered tail section. Firing mechanisms vary between both marks and modifications.

Because of the number of operational mines, this discussion will not take up any particular mine.

The following aircraft mines are operational: Mk 25, 52, 53, 55, and 56. Most of these also have modified versions. In general, they are 6 or 7 feet in length and have diameters of 18 to 24 inches. Weight of a mine usually is somewhere between 1000 and 2000 pounds, and all carry a high-explosive filler. All mines are bottom laid except Mk 53 and 56, which are moored. Mk 53 and 56 are sweep obstructors, designed to sever sweep wires by explosion upon contact of the wire with the mine.

NUCLEAR WEAPONS

The United States has pursued a policy of making the fewest number of nuclear weapons cover as wide a range of military applications as possible. This capability is achieved by planned interchangeability. By use of adaptational kits, nuclear warheads can be employed with rockets, torpedoes, missiles, and depth bombs. It has been noted previously, for example, that several Navy weapons (ASROC, for instance) have dual conventional/nuclear capability.

The primary air-launched nuclear weapon is, of course, the nuclear bomb, of which little can be said regarding specific characteristics.

Major operational components and nuclear components contained in a basic assembly are considered part of the bomb. A complete stock-piled weapon, however, may consist of more than one package. The reason is that additional assemblies such as fuze, firing set, radar, and power supply may be required to constitute the complete nuclear weapon.

Because of the large blast damage of nuclear bombs, the deploying aircraft crew must be protected once a bomb is dropped. One way to accomplish this might be to insert a timing mechanism in the bomb to retard detonation to provide a safe separation time. A second method is to slow the bomb by parachute (retarded free-fall bomb). Either method allows the aircraft to reach a point of safety before weapon detonation.

CHAPTER 19

STRIKING FORCE

A strike is an attack that is intended to inflict damage to, seize, or destroy an objective. A striking force is a force composed of appropriate units necessary to conduct strike, attack, or assault operations.

The mobility and versatile power of naval striking forces make them ideal instruments for enforcing national military policy. In peacetime, when unsettled world conditions require readiness for the instant application of force, the existence of a naval striking force may serve as a stabilizing influence to inhibit the outbreak of hostilities.

If hostilities should occur in spite of attempts to settle international disputes by other means, the carrier striking force is available immediately for the prompt and decisive action that may be essential for the accomplishment of national objectives.

Mobility, one of the greatest assets of naval striking forces, makes surprise attacks possible from any point on the periphery of an enemy land area bounded by navigable waters. The versatility of a striking force permits the use of a wide variety of weapons systems from either great distances or from close-in.

Types of task forces organized primarily for striking force operations are carrier, surface, and submarine striking forces. These forces may operate independently or together, as needed.

This chapter deals mainly with the carrier striking force.

CARRIER STRIKING FORCES

As developed in World War II, the fast carrier task force represented a revolution in naval warfare. World War II naval warfare was

unlike that of World War I and wars preceding. The carrier task force was designed as a naval striking force which could gain and hold command of vital sea areas.

A new pattern of sea war was set on 7 December 1941, when the Japanese used carrier-borne aircraft for their successful attack on our battleship force at Pearl Harbor. That assault graphically demonstrated the possibilities of carrier warfare. It also placed emphasis on the carrier as the new backbone of the U.S. Fleet; the attack immobilized our Pacific battleship force and, in terms of striking power, we had nothing left in the Pacific but carriers and cruisers.

Forced to the defensive after Pearl Harbor, the Navy nevertheless maintained the offensive spirit by ingenious and daring use of its few carriers and supporting ships. These ships, which had to be spread thin, were grouped in task forces. The general notion of the naval task force was an old and familiar one: a group of ships assembled to do a specific job and possessing the fire power, speed, and defensive characteristics estimated as essential for that job.

At first, the carrier task force was made up of 1 or 2 carriers, 2 or more heavy cruisers, and a small screen of destroyers.

When the task force under Admiral W. F. Halsey raided Wake Island late in February 1942, the carrier *Enterprise*, 2 cruisers, and 7 destroyers were employed. Early raids on the Gilbert and Marshall Islands were made with 2 carriers, *Enterprise* and *Yorktown*, supported by 5 cruisers and 10 destroyers.

At best, such a force had 175 fighter and attack aircraft. The task forces could take no reckless chances of encountering the Japanese fleet. They therefore made hit-and-run raids on

the outposts of Japanese power and a single defiant gesture against Tokyo with 16 B-25s from the *Hornet*. Harassing raids and long-distance jousting with the enemy's carrier forces were the only expedients of the fleet in that period when we had no heavy, armored, gunfiring ships. Yet those harassing operations on the rim of an area under Japanese control were enough to slow the enemy's advance toward New Caledonia, Australia, and Hawaii.

DEVELOPMENT OF THE FAST CARRIER TASK FORCE

As the United States Fleet as a whole grew in wartime, the fast carrier task force became an increasingly powerful weapon. New construction sent a steadily growing stream of carriers to the fleets. Two new types of fast carriers became available: the light carrier, of the *Independence* class, on a cruiser hull, and the larger *Essex* class. Both made in excess of 30 knots, and the term "fast carrier task force" was used to emphasize the speed of the force, in contrast to the more numerous but slower escort carriers, used for convoy work, for the close support of amphibious landings, and for ferrying operations.

New battleships were added as they became available. *South Dakota* and two other ships of her class, *Indiana* and *Massachusetts*, were in commission by the summer of 1942. Although these ships could not match the top speed of the fast carriers, they were fast enough to fit into the fast carrier task force without changing its essential formation and protective characteristics. Then came the *Iowa*-class battleships with ample speed for the mighty new fleet being created.

From this combination, with additional cruisers and destroyers, there emerged a swift, compact striking force, retaining all the advantages of speed, mobility, and surprise, and yet possessing the necessary firepower and protective armor to meet the enemy forces.

By 1945 the fast carrier task force was made up of up to 16 carriers, 6 to 8 fast battleships, a dozen cruisers, and 75 destroyers.

Slower ships such as old battleships and cruisers were assigned to the amphibious forces, where the tactical speed was determined by that of transports and other amphibious types.

With 16 carriers, the fast carrier task force normally had more than 1000 operational aircraft, with pilots and aircrews, repair facilities, and personnel for maintenance. Each carrier was an airbase afloat, capable of extensive operations for long periods of time.

Most ships of the carrier task force were conventional gun-firing ships—battleships, cruisers, and destroyers. The battleships, ensured offensive strength to deal with a hostile surface fleet which might be encountered, and also contributed very important antiaircraft protection, mounting a large number of 20-mm, 40-mm, and 5-inch guns. Battleship aircraft, along with those of the cruisers, provided a valuable seaplane rescue service in addition to their normal duty of controlling fire during shore bombardment or surface action. Cruiser forces added materially to the antiaircraft protection of the carriers, and they participated along with battleships and destroyers in bombardment missions.

The destroyers, steaming on the perimeter of task group formations, were valuable in countless ways, furnishing antisubmarine protection for the force as a whole, detecting and detonating floating mines, providing antiaircraft fire, rescuing pilots, picking up survivors from damaged ships, and acting as couriers to transfer mail and personnel.

A fast carrier task force with its deployed task groups sometimes covered more than 75 miles of ocean.

TASK GROUPS

Normally, the fast carrier task force, as it operated in World War II, was deployed in three to five task groups, for so large a force could not be maneuvered easily as a tactical unit. Each carrier task group was commanded by a rear admiral. From his flagship were sent the signals controlling the movements of all ships in that group. A typical fast carrier task group in the latter stages of the war consisted of 4 to 5

carriers, 3 battleships, 3 to 7 cruisers, and about 24 destroyers. These figures are merely illustrative, as the number of ships frequently changed.

LOGISTIC SUPPORT

United States strategy in employing fast carrier task forces requires that they steam quickly from one place to another. Returning to forward bases to replenish takes valuable time.

Therefore, the service forces—oilers, ammunition and supply ships, and their escorts—supply the needs of the task forces. Service forces are considered as task groups, and while not actually a part of the combatant forces, they are under the operational control of task force commanders. Plodding between the carrier force and various bases, these ships bring to rendezvous points needed supplies of fuel and diesel oil, gasoline, aircraft fuel, dry provisions, ammunition, many miscellaneous items, and

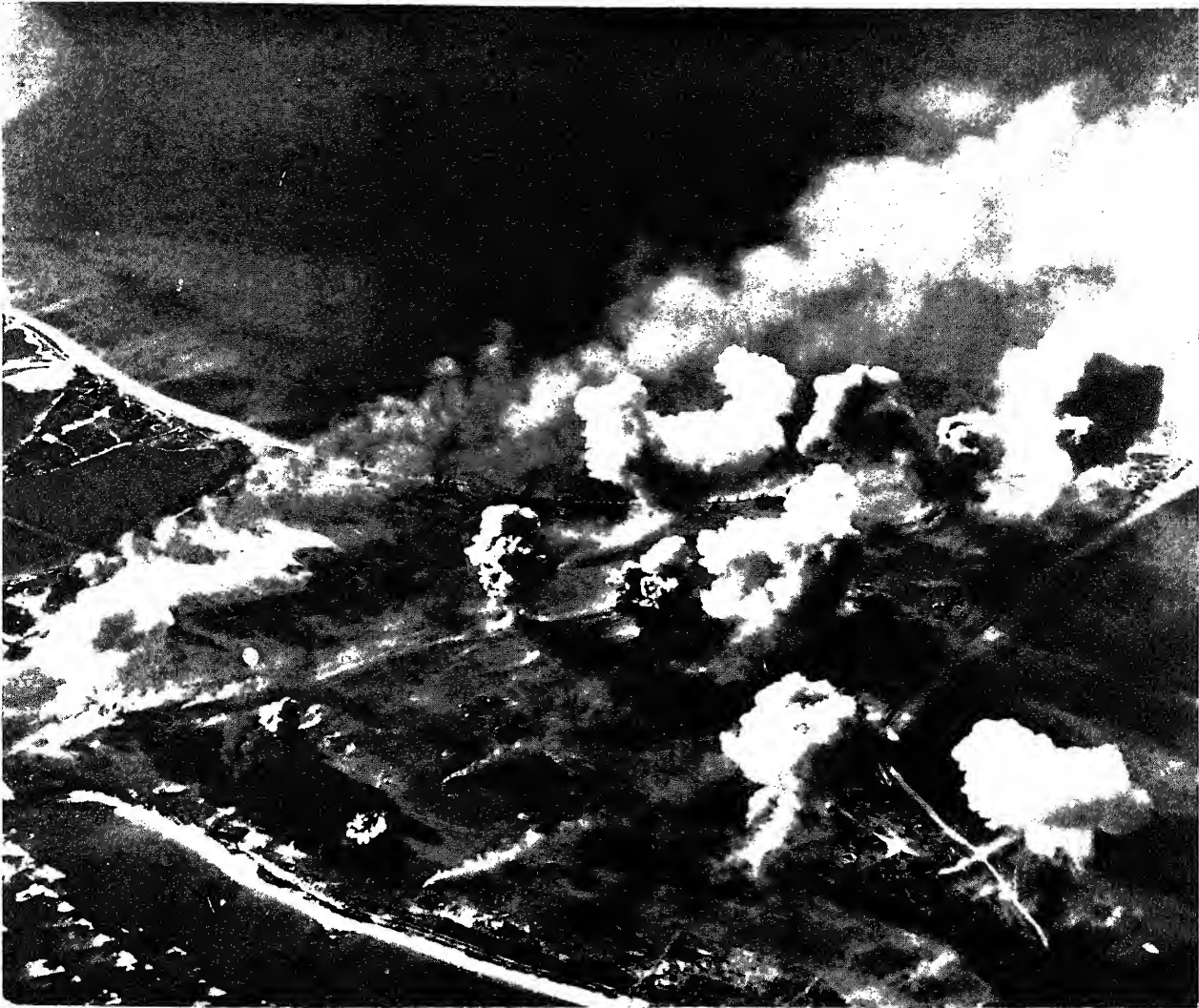


Figure 19-1.—One mission of the carrier task force is to make pre-invasion strikes against enemy airfields.

mail. These service forces enable the Navy's ships to replenish most of its needs at sea.

Fueling at sea was a familiar procedure long before World War II; the processes of provisioning ships at sea and of transferring ammunition and missiles has since then improved steadily. Present-day at-sea logistical support has reached the point where a force can remain at sea almost continuously.

AMPHIBIOUS SUPPORT

The carrier task force plays an important role in the support of amphibious operations (see chapter 23).

Before an amphibious landing on a hostile beach, perhaps a week or two in advance,

carriers send aircraft to strike enemy airfields and other designated targets (figure 19-1) that are within effective radius of the amphibious objective area. They sometimes are directed to strike at enemy shipping in harbors for about 500 miles around the objectives designated for assault.

The carriers also serve as a screen for ships of the amphibious forces. En route they provide air and surface protection for amphibious shipping.

PRESENT-DAY STRIKING FORCES

As developed in World War II, the carrier task force is tasked to perform several

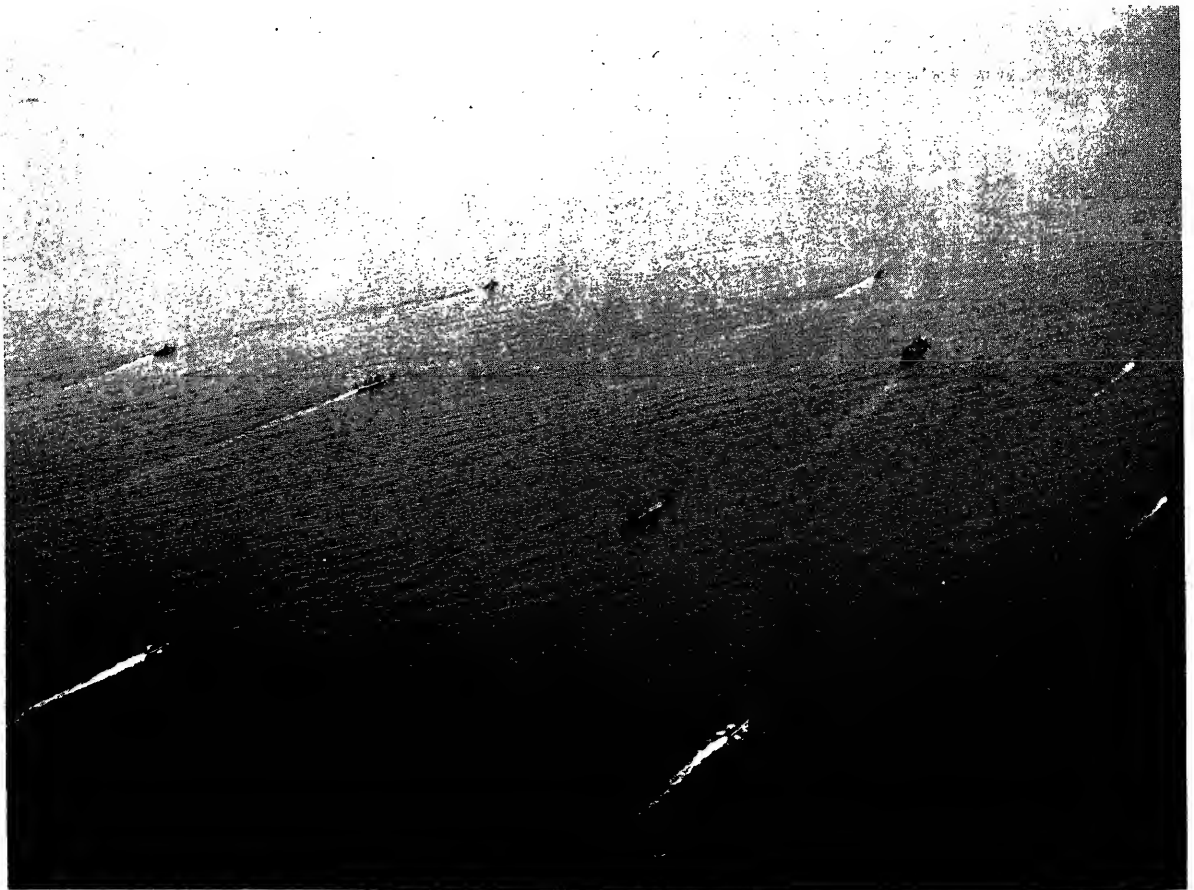


Figure 19-2.—Task force steaming formation with two carriers, a cruiser, and circular destroyer screen.

110.114

well-defined missions. One obvious mission is to seek out and destroy the enemy's air power. Another is to make pre-invasion strikes against enemy airborne aircraft and enemy airfields to neutralize enemy air power in the amphibious objective area. A third mission is to provide close air support during an amphibious landing; and a fourth, to make diversionary strikes against remote enemy positions, feinting to draw enemy strength away from the true objective of our operations. Still another mission, primarily involving the gun-firing ships, is to provide general cover for the amphibious force against enemy surface units.

In a broader sense, the mission of a carrier task force is much like that of any major fleet in naval history: to establish and maintain command of the seas. Although it employs aircraft as its primary offensive weapon, the carrier task force is a balanced naval force (figure 19-2), equipped to assert command of the seas. Its extensive and successful use in the

prosecution of specific offensive thrusts with amphibious forces should never obscure its broader function—to ensure command of sea communications.

Striking forces are task forces formed primarily to conduct strikes, sweeps, or raids. A strike is any naval operation which is planned to produce devastating damage to an objective. A series of strikes in combination against several enemy targets in a certain area is termed a sweep. A raid is a sudden attack, usually by a small force having no intention of holding the territory invaded.

The basic tactical component of a carrier task force is the task group, composed usually of one carrier along with necessary supporting ships, as in figure 19-3. The commander of a task force includes in his operation orders breakdowns of the groups into units and further into elements, each with a particular mission or type of mission. Hence, a particular ship might be included in two or more of the groups, units,



134.99

Figure 19-3.—The basic tactical component of a carrier task force is the task group, composed usually of one carrier along with necessary supporting ships.

or elements. The commander thus attempts to provide for all probable tactical situations.

A World War II task group, depending on the situation, usually was formed into a more or less compact formation with several carriers at the heart. Screening battleships, cruisers, and destroyers were arranged around the carriers in that order, i.e., in a descending order of firepower. This provided the carriers with maximum protection against aircraft, submarines, and gunfire.

Compositions as well as formations of task forces and groups have changed. The battleship has disappeared from the scene. Guided-missile ships, radar picket ships and submarines, and airborne early warning (AEW) aircraft have been added. Nothing remains of the precise circular formations of World War II. Instead, ships are now positioned in spread formation over vast expanses. This tactic makes it more difficult for an enemy observing on a radarscope the arrangement of a formation to determine which ship is the carrier. Heavy ships of the screen sometimes remain relatively close to the carrier, but relative distances of destroyers may be much greater. Formerly a destroyer's primary job was screening against submarines; to this has been added the equally important task of acting as picket ship. Picket ships, picket submarines, and AEW aircraft are deployed in the direction from which an enemy might be expected to launch an attack. Such disposition increases the chances of spotting enemy activity, warning of which can be radioed to the task force, thus enabling it to make last-minute preparations for defense and counterattack.

AIR STRIKES

An air strike is an attempt by a group of planes to inflict damage on an enemy target.

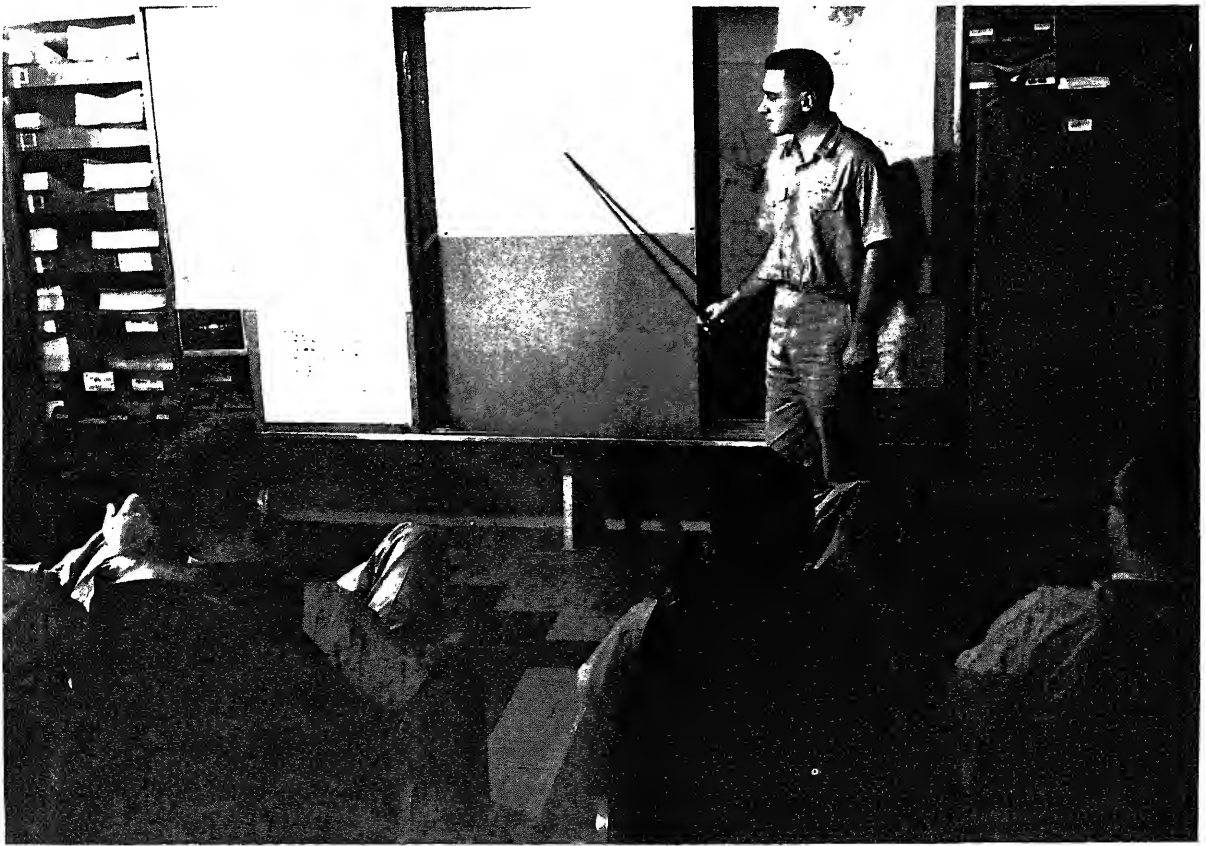
Before an air strike is made against targets ashore, a plan of attack must be considered. Pilots participating in the strike are thoroughly briefed on the plan. Included in the briefing (figure 19-4) is all known information that might contribute to the success of the strike;

e.g., enemy strength, location or probable location of the enemy, recovery areas, weather conditions, location of friendly forces, and if feasible, target priorities. Methods of delivering the attacks and the weapons selected depend, among many other things, on whether it is to be a day or night attack and on the weather conditions at the target(s).

For protection against air attack, at least some fighter cover (counter-air strike force) is kept in readiness at all times to defend the carrier task force. Depending on the tactical situation, this combat air patrol (CAP) is either airborne on station or on the catapults in readiness for takeoff. Size of the CAP is prescribed by the officer in tactical command in his operation order, although the number of aircraft assigned may be modified by him as the situation changes. (More on defense against air attack in the chapter on antiair warfare.)

SURFACE STRIKING FORCES

Each task force or group commander includes in his operation orders provision for surface striking forces which can be detached to perform certain missions. He prepares a battle plan for these forces on the supposition that surface action will materialize. However, such a force generally is used only when the enemy surface threat is a primary one or when other means cannot accomplish effectively the desired result, such as when adverse weather conditions make air operations uncertain. And, there may arise special situations when a surface striking force will be detached, for example, to destroy isolated or crippled enemy surface units, conduct shore bombardment, or for surface scouting missions. Normally, though, aircraft are the principal agents for tactical scouting, and air action usually precedes a surface engagement or occurs during the engagement. An air strike before a surface engagement may surprise the enemy and damage his forces to such an extent that the surface action becomes a pursuit of the disorganized enemy forces, or it may slow his forces so that they can be engaged with surface fire or missiles. Aircraft also can be used for spotting gunfire and ship-launched missiles.



134.164

Figure 19-4.—Air intelligence officer briefing pilots prior to an air strike.

SURFACE ACTION

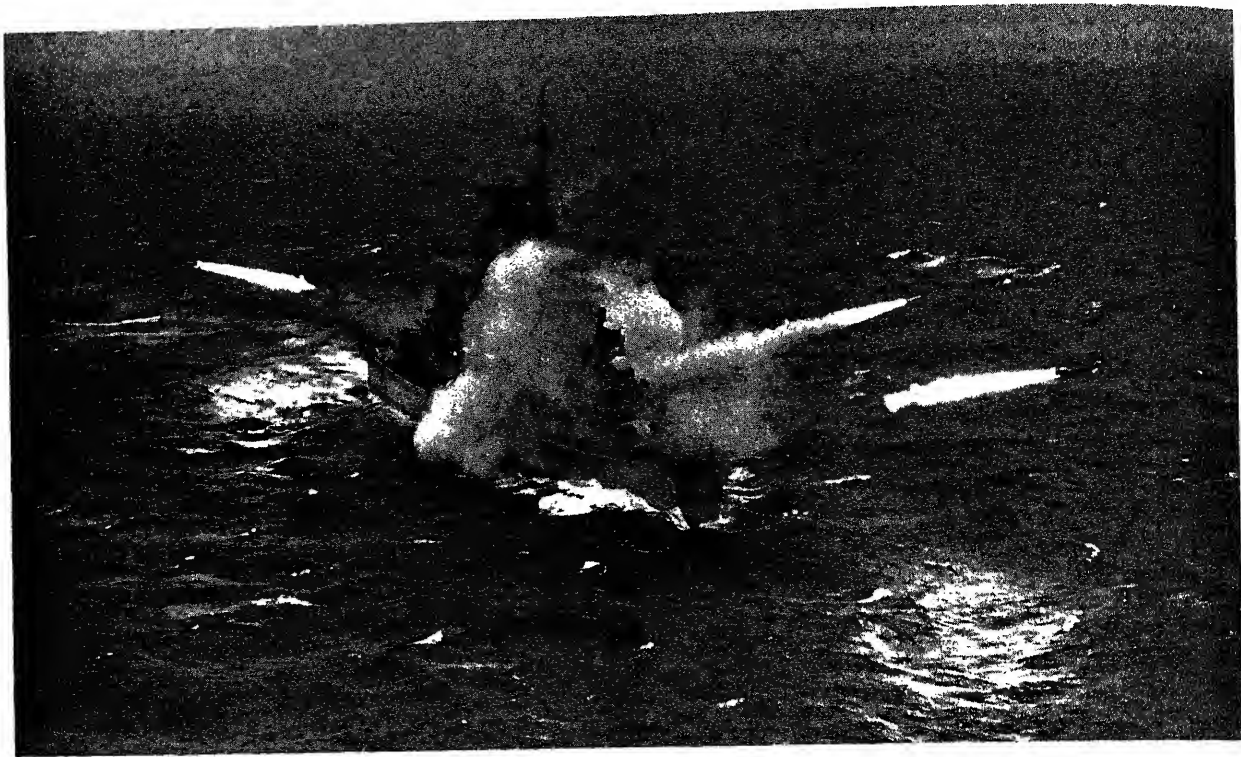
Tactically, a surface engagement is often a series of rapid and overlapping transitional phases. Normally, a surface striking force or group, initially in a cruising disposition, first forms into an approach disposition, then deploys for battle, and after the engagement re-forms for pursuit or mopping-up operations. The maneuver of changing from an approach or cruising disposition to a battle disposition is called deployment. The basis for deployment and subsequent action is the battle plan.

When the battle plan is to be executed, the officer in tactical command (OTC) signals his battle order placing the plan into effect. Once the battle is joined, the OTC does not control the maneuvers of the striking groups except by

general plan. A battle formation is not a precise formation; individual units, however, do attempt to maintain approximate station.

FIRE SUPPORT

Although often considered a phase of amphibious operations, surface forces may be called upon to render gunfire or rocket support for troops ashore. During World War II, this was accomplished primarily by a force of battleships, cruisers, and destroyers that would lay down several hours or even days (near the end of the war) of bombardment in an attempt to destroy as many gun emplacements or other fortifications as possible before troops hit the beaches. After the landings, ships remained to provide assistance as tactical circumstances



134.166

Figure 19-5.—Improved guided missiles have greatly increased the distance from which naval offensive power can be exerted.

dictated. In Korea and Vietnam, fire support missions generally followed the latter pattern because landings were not so heavily opposed as in World War II.

CURRENT CAPABILITIES

Weapons and weapons systems developed since World War II have expanded the power and extended the range of the striking force. In addition to a striking force built around the

attack aircraft carrier, for example, new weapons systems have made possible the creation of striking forces built around other types of ships such as the guided-missile ship, submarine and proposed strike cruiser.

Improved guided missiles of increased range, accuracy, and destructive power (figure 19-5) greatly increase the distance from which naval offensive power may be exerted by guided-missile ships and submarines against targets whose locations are accurately known or determinable.

CHAPTER 20

ANTIAIR WARFARE

With the introduction of the aircraft carrier into the leading navies of the world during the 1920s and early 1930s, and the advancements in military aviation during that period, antiair warfare became an increasingly important matter in the United States Navy. As a consequence, antiaircraft armament was greatly increased on new construction combatant-type ships. The antiaircraft weapons of the *Pensacola* (CA 24), commissioned in 1930, included four 5"/25-caliber high-altitude guns and eight 50-caliber machineguns, as opposed to the four 3-inch guns that comprised the AA battery of the *Maryland* (BB 46), commissioned 9 years earlier. Dual-purpose 5-inch guns were introduced with the *Farragut* (DD 348) class destroyers in 1932. The *St. Louis* (CL 49) of 1939 had dual-purpose secondary batteries in lieu of the low-elevation mounts formerly carried on cruisers and battleships. The *Atlanta* (CLAA 51) class light cruisers, ordered in 1938, were designed as antiaircraft escorts.

Tragic experiences of the British Navy in the Mediterranean and in northern waters, and the sinking of the German light cruiser *Konigsberg* off Norway in 1940, led to further significant increases in both heavy and light antiaircraft guns of the major naval powers. In the United States, where 50-caliber machineguns had been the primary short-range aircraft defense, quadruple 1.1-inch mounts were rushed into production; by late 1941, two or three of these mounts could be found on most of our large combatants. Still, as the sands of peace ran out for the United States, the Navy was found lacking in its defenses against the capabilities of airpower.

During the attack on Pearl Harbor, Japan lost 27 of 353 aircraft, nearly all to fire from

ships in the harbor. Unimpressive by itself, the figure becomes glaringly significant when the concentration of American ships is considered along with the fact that the attack was spread out over a period of 1-1/2 hours. There were simply too few guns and too little coordination to provide an effective air defense, although, admittedly, much of the fire control equipment was under repair or had been damaged early in the attack. Three days later the story was repeated as Britain's *Prince of Wales*—only 6 months in commission—and *Repulse* were sunk at sea by Japanese aircraft.

Experience quickly showed the 50-caliber to be too light and the 1.1-inch too finely precisioned for use against aircraft. As a result, single 20-mm and quadruple 40-mm guns were placed on a mass-production basis. They soon appeared on all newly constructed and modernized ships.

Radar had first gone to sea in 1937 and, on 7 December 1941, four of the eight battleships in Pearl Harbor had radar in some form as did *Helena* (CL 50) and a few other cruisers. Within the first few months of the war, virtually all combatant units in the Pacific had been fitted with the SC-type air-search radar. Although primitive, the SC did provide a significant extension over visual detection ranges. The main problem in the early days of radar was not so much with the equipment, but in convincing officers to trust it and training men to operate it. Acceptance of radar was not complete until introduction of the SG-type surface-search radar in 1942 which was equipped with a plan position indicator (PPI) scope. The PPI scope made it possible to obtain a clear tactical presentation directly from radar equipment.

Early AAW doctrine had called for individual guns to pick out individual aircraft and take them under fire. This technique was impossible to coordinate and often led to some aircraft not being shot at until it was too late. The Coral Sea and Midway naval battles in May and June of 1942 pointed up the fact that a coordinated air defense plan was necessary for maximum protection of carriers. An early example of a coordinated air defense plan was barrage fire, in which fuzes of heavy caliber guns were set to explode along a fixed line so that, in effect, the fire of all the ships would be concentrated in a "wall" of flak. Any aircraft that penetrated this barrier were taken in hand by the 20-mm and other weapons according to their proximity.

By late 1942, ships arriving in the South Pacific were well-fitted for antiaircraft operations. The battleship *South Dakota* (BB 57), mounting sixteen 5"/38s, forty-eight 40-mm, and many more 20-mm guns, single-handedly accounted for 26 planes in the battle of Santa Cruz in October 1942. With improved fire control, the 5"/38 became the definitive AA weapon; it was made even more effective with the introduction of the VT fuze (see below).

The practice of holding fighters on hand to protect carriers had been prewar doctrine, but it was not until the PPI scope permitted coordinated (directed) intercepts that the combat air patrol (CAP) became fully effective. (The CAP consists of carrier-based aircraft that patrol assigned sectors around a task formation.)

On 1 January 1943, *Helena* shot down a Japanese aircraft by using proximity fuzed shells. This kill was a first for a weapon that was to destroy thousands of enemy planes, yet remain one of World War II's closely guarded secrets. The fuze resulted from advances in miniaturization that brought about a radio transmitter small enough to fit in the nose of a shell. As noted in chapter 18, when the projectile passes close to a target, reflected electronic pulses detonate the explosive, making it possible to damage or down an aircraft even though a direct hit has not been scored. Previously, fuzes were preset to explode at a

given time after firing, so the new shells were designated VT, for variable time, a name they retain today.

By the end of 1942, electronic devices had so increased the information available to unit commanders that it became necessary to have a centralized shipboard station in which data could be analyzed and put into a form upon which tactical decisions could be based. Called the combat information center (CIC), this station (figure 20-1) soon became the nerve center of any ship that had it, and remains so. Originally, CIC was an expansion of flag plot on large ships, but it quickly became apparent that destroyers also needed such an arrangement. The *Fletcher* (DD 445) class, just entering service, had a large commodore's stateroom; and early in 1943 the stateroom in one ship of the class was converted to a CIC. The experiment was so successful that her sister ships were similarly fitted, and the CIC became an integral part of succeeding destroyer designs.

By 1945, antiair warfare doctrine for the carrier task force was as follows:

The carriers operated in a collection of task groups, the combination of which constituted the task force. To maximize antiaircraft protection, the two or more carriers (there could be as many as 16) assigned to a group were surrounded by a screen of ships. The groups operated in dispersed, but closely coordinated, formations often separated by 15 miles or so. In this way, each group was able to maintain effective ASW and AAW defenses, while the entire force was sufficiently spread out so that it could not be knocked out by a single attack.

Because early warning and superb coordination were needed to combat Japanese suicide pilots, the picket line tactic was adopted. Outlying destroyers were stationed, sometimes 50 miles from the task force, to detect and report on the composition and disposition of enemy aircraft. Often bearing the brunt of the attack, CIC-equipped pickets controlled assigned CAPs from their own positions.

Thus, in World War II, antiair warfare grew from a haphazard procedure to an exacting art. Electronic devices had given rise to CICs filled with glowing screens and plotting boards from



59.41

Figure 20-1.—By means of various plots and status boards, personnel in CIC maintain an up-to-date, comprehensive picture of the disposition of all friendly and enemy forces. In many ships, CIC is the battle station of the commanding officer.

which the defense of the force was directed, generally long before a visual contact was made.

With the advent of the nuclear bomb, safety required dispersion over areas sufficiently large that an entire task group could not be crippled by a single weapon. The concept of concentration of fire now had to be weighed against protection of the force and the greatly increased aircraft speeds against which the effectiveness of gunfire became questionable. The logical solution was the anti-aircraft

missile—a long-range weapon that could ensure aircraft kills with one or two shots.

ANTI-AIR WARFARE TODAY

Anti-air warfare includes all measures designed to nullify or reduce the effectiveness of attack by hostile aircraft or guided missiles. Active AAW includes the use of aircraft, AA guns, missiles, and electronic countermeasures. (Electronic countermeasures are employed to

jam radars, mask or monitor electronic transmissions, confuse guidance systems, present false targets, and the like.) Passive AAW—measures other than active, taken to minimize the effects of hostile air action—involve elements such as cover, concealment, and dispersion.

Ships and aircraft are joined in a task formation to accomplish a mission that has been dictated by strategic necessity. An AAW formation is designed to protect a carrier, which is the offensive striking unit of a fast carrier task force or group.

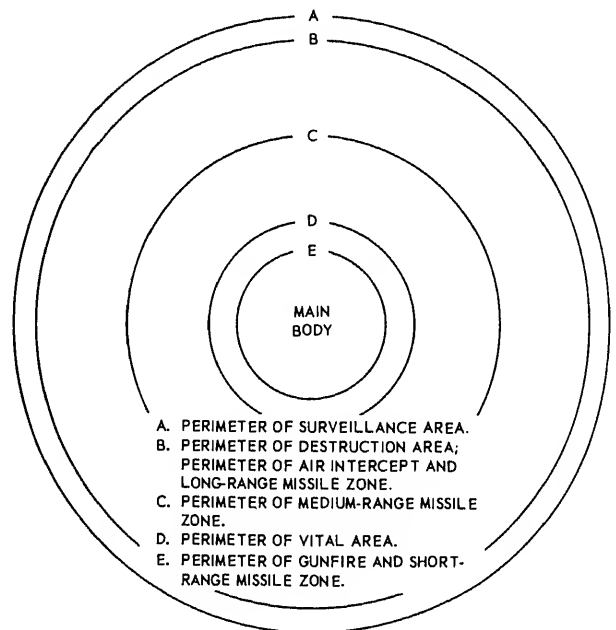
When a strike is launched against ships at sea by an enemy, defensive AAW operations may be divided into three phases occurring successively as attacking aircraft approach the force. The first phase involves searching for, finding, evaluating, and reporting the enemy attack force. This step is followed in the second phase by initial active AAW defense measures—taken while attacking aircraft are at a considerable distance from the force—that may include electronic deception, aircraft intercepts, and long range, surface-to-air, guided-missile fire. The third phase, during which attacking aircraft have penetrated near or within the AA gun range of the main body of ships being defended, is close-range defense by gunfire, short-range missiles, and evasive maneuvering.

Speeds of modern aircraft and missiles require that defensive measures be taken as early as possible and at the greatest practicable distance from the attacking force. An AAW operation therefore utilizes distant early warning aircraft such as the E-2, and surface picket ships, generally guided-missile destroyers. Depending on the size of the formation and nature of the threat, there may be several sector anti-air warfare coordinators (SAAWCs) who conduct operations in designated areas; SSAWCs report to the force anti-air warfare coordinator (FAAWC) who then coordinates defenses over the entire task force area of responsibility.

The FFAWC normally designates the extent of the anti-air warfare area, which encompasses the total region to be protected from enemy air attack. As can be seen in figure 20-2, the AAW area in essence consists of concentric circles

drawn around the main body of ships at distances determined by the nature of the expected attack. The circles represent outer perimeters of areas into which the AAW area is subdivided. The surveillance area, the outer limit of which corresponds to the perimeter of the entire AAW area, is the region of search, detection, and tracking. The destruction area is the sector (within the surveillance area) in which destruction or defeat of the enemy airborne threat should occur; it is divided into an air intercept and long-range missile zone, medium-range missile zone, and gunfire/short-range missile zone. The vital area contains the main force of ships being defended.

The AAW area usually is oriented about an AAW axis, or threat axis, which is true bearing from the vital area to the most probable direction of enemy attack. It is along the AAW axis that early warning aircraft and picket ships normally are deployed. A number of factors affect the choice of an AAW disposition. These include, as examples, the submarine threat, available ships and aircraft, fuel, amount of



59.42
Figure 20-2.—The force anti-air warfare coordinator determines the extent of the AAW area.

protection required, and weather. Whenever possible, mutual support from nearby units is obtained by designating overlapping AAW areas.

When an aircraft poses a definite threat, the AAW coordinator must decide which weapon to use. The first line of defense is the on-station CAP. If CAP is in the target area, and relative speeds of CAP and target indicate a possible intercept, the AAW coordinator may order CAP to be vectored to the target, vectoring being accomplished by an air controller in the AAW unit (aircraft or surface ship) that has been given CAP control. On-station CAP aircraft orbit at a station between the inner and intermediate surface picket lines, roughly 30 miles from their controlling units.

We can miss with CAP for several reasons. Patrolling aircraft may be out of position; relative speeds may work against an intercept; and conditions of poor visibility and/or radar reception may render CAP useless. When CAP proves ineffective, the AAW coordinator may employ long-range missiles or launch additional interceptor aircraft.

While CAP intercepts are being attempted, fire control radars on missile ships are directed to the target by shipboard weapons direction systems. When a ship is ready to engage a target with missiles, the AAW coordinator is notified and he may order missile launch(es). If more than one ship is prepared to engage by missiles, the AAW coordinator must decide which ship, or ships, will take a target under fire, considering, among other things, which ship is in best position for a kill and what type and number of missiles it has aboard.

Missile ships may be stationed in the extended (outer), intermediate, or inner screen position, but they should remain either far enough in or out to allow CAP to operate freely. A missile ship usually is free to fire on any target that enters its envelope, and a well-defined crossover point must be designated. A crossover point is the range at which a target ceases to be an air intercept target and becomes a surface-to-air missile target. Air controllers must be careful to keep CAP from crossing this point lest they be destroyed by friendly fire.

In the event that an attack cannot be stopped by CAP or long-range missiles, the AAW coordinator may direct the carrier(s) to launch additional interceptor aircraft. Interceptors remain ready for launch in specified conditions of readiness as follows:

- Condition One CAP: Pilots strapped in cockpits; catapult and deck crews at stations; all leads to engines plugged, ready for immediate ignition. Reaction time is limited only to the time required to turn the carrier into the wind.
- Condition Two CAP: Aircraft ready to start; pilots and deck/catapult crews nearby rather than on station.
- Condition Three CAP: Demands launch capability within 15 minutes. Pilots are in ready rooms, crews relaxing near stations.
- Condition Four CAP: Pilots and crews on 30 minutes notice.
- Condition Five CAP: Pilots and crews free until called.

Fighter aircraft are classified as interceptors, day fighters, and all-weather fighters. Interceptors usually are high-speed, short-range aircraft designed mainly to intercept targets.

Day fighters, designed to engage enemy aircraft under visual flight conditions, also perform interception and area patrol missions. All-weather fighters—larger, heavier, and with greater endurance than other fighters—are capable of destroying enemy aircraft under any conditions of weather or visibility.

Although conventional gunfire can be effective in AAW, high-speed jet aircraft have made defense by gunfire a last-ditch effort. At 600 miles per hour, an attacking aircraft is within effective range of a 5-inch gun for less than a minute before the plane reaches its drop point. This speed allows at best about 100 rounds of gunfire from one ship; in World War II we expended an average of 3000 rounds of all types to down each propeller-driven aircraft.

Defense against an air attack demands a high degree of coordination between widely dispersed

units in the formation. The attackers can climb to very high altitudes, or they can come in just over the wave tops. No matter what their altitude, their speed in many cases is supersonic. This means that instantaneous reactions and quickly computed solutions are absolutely essential to the defenders. Even after attaining maximum proficiency, a ship's individual efforts would probably prove futile unless she were deployed in a defense-in-depth formation. Defense in depth requires intensive coordination. Teamwork is then the order of the day and the captain of the team is the AAW coordinator.

The AAW coordinator and his staff are usually embarked in a missile cruiser where the entire AAW picture is presented on various display plots. He maintains communications, except during some conditions of electronic silence, with all of the AAW units. He receives all "bogey" (unfriendly air contact) information from the detecting ship or aircraft. Speed of communication and dissemination of target data are essential. Therefore, NTDS (Naval Tactical Data System) was developed to fulfill these requirements.

The Naval Tactical Data System (NTDS) is designed to bridge the gap between the command system and the weapon system, both on individual ships and between elements of the fleet. A salient feature of the system is that target data, obtained by any NTDS-equipped unit in a task organization, are made available almost instantaneously to all other NTDS units in the force. Such an automatic system makes possible optimum utilization of both offensive and defensive capabilities of ships and operational groups.

ANTISHIP MISSILE DEFENSE (ASMD)

The ASMD program significantly improves a ship's capability in countering high-speed, low-altitude, antiship missile threats. In attaining this defense posture, modifications are made to the overall ship combat system to enhance low-flyer and electronic warfare (EW) detection capabilities, to reduce reaction times by modifying command and control functions for weapon direction, to improve gun and missile system engagement capabilities, and to expand EW system capabilities. In addition to these combat system improvements, on-board training devices are installed to support Combat Information Center (CIC) team training exercises. The ASMD program furthers the improvements provided by the Ship Antimissile Integrated Defense (SAMID) immediate program by expanding the ship capabilities to counter antiship missile threats. The ASMD program integrates additional subsystems into the combat system and makes use of expanded tactical data processing techniques in providing a fully automatic method of initiating preselected responses to particular antiship missile threats.

The gun weapon system supports that element of the ship's mission requiring offensive operation against air, surface, and shore targets. It provides this support through its ability to destroy these types of targets at ranges within the minimum range capability of the Terrier, Tartar, and Talos guided-missile systems.

As in other types of warfare, successful AAW operations must be based in part on lessons learned through costly experience, and they must be practiced continually in order to be effective.

CHAPTER 21

UNDERSEA WARFARE

Undersea warfare, as discussed in this chapter, is composed of two parts: submarine warfare and mine warfare. (Antisubmarine warfare is the subject of the next chapter.)

Historically, the mission of a submarine has been to seek out and destroy enemy surface ships, both combatant and noncombatant. In the recent past, the basic mission was changed and now the primary mission of submarines is to seek out and destroy enemy submarines. The advent of the nuclear-powered ballistic missile submarine introduced an entirely new mission—the delivery of ballistic missile attacks against assigned shore targets.

The primary purpose of mine warfare is to deny to the enemy the use of certain water areas and to endanger his ships wherever possible.

SUBMARINE WARFARE

The first submarine to enter combat was developed in 1776 by an American, David Bushnell. Revolutionary in every sense of the word, Bushnell's *Turtle* made a submerged attack on a British warship in New York Harbor. Operated by a hand-worked propeller, her tanks flooded by a valve and emptied by a hand pump, the *Turtle* encountered overpowering difficulties and her maiden foray was ridiculed as a failure. Not until after the war was it known that Bushnell's undersea boat worried the British into moving their blockading warships from New York Harbor to the outer bay.

Robert Fulton's *Nautilus*, operating successfully in European waters two decades later, shocked the English with its destructive possibilities. No nation at that time ventured to

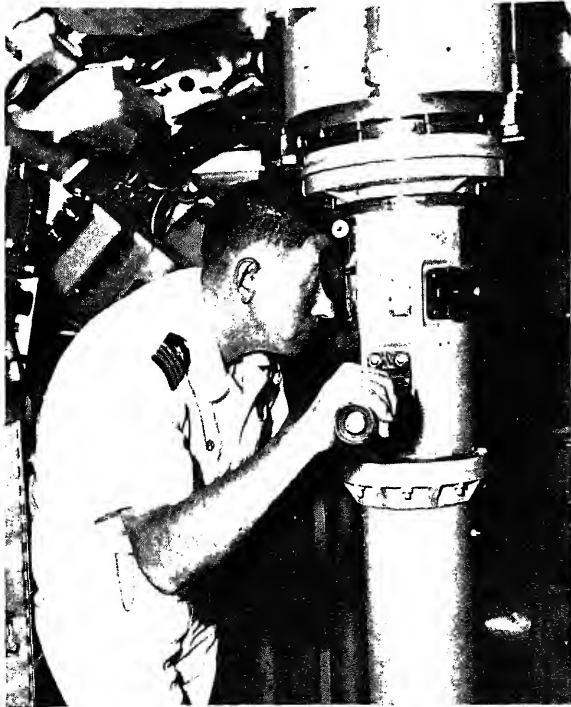
sponsor such a craft. A diving boat that could navigate at a depth of 25 feet spelled future trouble for surface navies—trouble that materialized in the sinking of the Federal warship *Housatonic* by the ingenious Confederate *Hunley*. A hand-propelled, iron boiler that could travel with deck awash and drive a "spar torpedo" into the hull of a ship, the *Hunley* was the first submersible to sink an enemy vessel. Even though the *Hunley* itself was destroyed by the explosion that sank the *Housatonic*, it was obvious that the submersible presented a serious threat to the Federal blockade. The *Hunley* had its counterpart in the Federal *Alligator*, sunk in a storm off Hampton Roads before she could go into action. These were the forebearers of the modern submarine.

Three factors limited the operations of the early undersea boat. Low visibility restricted its navigation on the surface, and the vessel was blind when submerged. Underwater weapons, sufficiently destructive, had to be towed into contact with the target, punched at the target, or attached to the target; and such close-range devices endangered the submarine. Because steam power proved impracticable for propulsion when submerged, movement was supplied by manpower, willing but soon expended.

The first problem was solved by the periscope (figure 21-1), designed by Marie Davy in 1854. The submarine now had eyes.

The weapon problem extended over a longer period. Not until Robert Whitehead's "automotive" torpedo was constructed in Fiume, Austria, in 1864 was that problem successfully solved. Whitehead's torpedo was propelled by a small reciprocating engine.

SUBMARINE WARFARE DURING WORLD WAR I



134.101

Figure 21-1.—The skipper takes a look at the surface.

Several decades were to pass before the development of the steam torpedo. Directional accuracy came in 1885 when Lieutenant Howell of the United States Navy invented the vertical rudder controlled by a gyroscope driven at high speed by compressed air. The mobile torpedo, however, first went into combat as the weapon of the surface torpedoboat.

Then came the internal-combustion engine and, simultaneously, electric motors run by storage batteries. Submarine propulsion was solved. By 1890, John P. Holland and Simon Lake, American inventors, were hard at work over their drawing boards. Nordenfelt in Sweden, and Zede and Romazzotti in France were building submarines. The Russians and Spaniards, too, were pioneers in this endeavor. In 1900 the *USS Holland* was launched. Six more U.S. submarines were commissioned in 1902. In 1905 the Germany Navy obtained its first U-boat.

The Navy of nearly every major power was experimenting with or operating submarines in 1914 when World War I exploded in Europe. But only the Germans had fathomed the potentialities of undersea warfare and were prepared to exploit fully the unique capabilities of the submersible.

The German U-boat fleet, if small, was superior to the others. Developed in great secrecy, the German diesel engine gave the U-boat a cruising range many miles beyond that of the British E-class submarine or the American gasoline engine model.

Although the British employed the first class of submarine designed specifically for antisubmarine missions, their ASW efforts in the early years of the war had but indifferent success. With the entry of the United States into the war, however, American planes and destroyers joined the British in the U-boat hunt; but the weapon that finally contained the U-boat and eventually broke the morale of German submariners was the mine.

Early in the war, the Dover area was mined and nets laid, and mines were planted in the Heligoland Bight. Many of the latter, however, were swept by the Germans as fast as they were laid; and U-boats made passage to the Atlantic through the North Sea. Therefore, a barrage of thousands of mines was planted in a stretch of water between the Orkney Islands and Norwegian territorial waters.

Later it was established that U-boats were avoiding the minefield by transiting Norwegian territorial waters. To preserve the integrity of her waters, Norway laid her own mines from her coast to the area already mined by U.S. forces.

When the Allied and Norwegian plantings were completed, there remained open only a 10-mile strip near the Orkney Islands, and this was well guarded by the British fleet. The "stopper was in," and the U-boats were bottled up in the North Sea.

By October 1918 some 17 U-boats were sunk or damaged by the great mine barrier and

at least 40 were missing, their fate undetermined. At Wilhelmshaven the German submariners mutinied. The mutiny spread to the High Seas Fleet at Kiel. The Germans had lost the undersea war and with it all hopes of defeating the Allied coalition. In November the German High Command sued for an armistice, and World War I was over.

During the closing months of World War I, the Allied Submarine Devices Investigation Committee, termed ASDIC, had been formed to obtain from science and technology more effective underwater detection equipment. Before disbanding, the committee had developed a reasonably accurate device for locating a submerged submarine. In the interval between the world wars, the British greatly improved the device which they called asdic.

Subsequently, American scientists developed sonar (a name derived from the term "sound navigation and ranging"). With asdic or sonar, a submarine could now be detected when submerged, and these electronic devices threatened to deprive the submersible of that concealment which was its shield and cloak.

Improved depth charges, 1000-pound aircraft bombs, and the establishment of antisubmarine patrol forces boded ill for the detected submarine. Capital ships, however, were heavily armored below the waterline and designed with protective compartments to confine the effects of torpedo explosions.

SUBMARINE WARFARE DURING WORLD WAR II

At the time of the German surrender in 1918, few observers suspected that World War I, with its immense toll of human life and colossal material destruction, was but a dress rehearsal for a second global conflict—a two-ocean war in which the submarine would play an even greater part than in World War I.

Hitler started rebuilding the German Navy in 1934, first in flagrant violation of the Versailles Treaty, and then behind the legalistic front of a bilateral agreement with Great Britain. Nazi intentions were masked by threatening gestures

in the direction of Russia and an Axis pact presumably aimed at Communism. In the meantime the German Navy grew, and with it a modern U-boat fleet capable of an Atlantic offensive.

Organized by Admiral Doenitz, the Nazi U-boat force was imbued with Prussian tradition and well trained. German submarine tactics were highly aggressive, featuring daytime attacks made at periscope depth and night attacks on the surface where the submarine could take advantage of high surface speeds.

When the Germans invaded Poland, the Nazi U-boat force numbered 76 submarines. On 3 September 1939, Great Britain and France declared war on Nazi Germany. Less than 9 hours after the declaration, the British liner *Athenia* was torpedoed by a U-boat off the west coast of Ireland. The liner carried 1103 passengers, including 311 Americans. On 17 September the large aircraft carrier *Courageous* was sunk by a German submarine, and on 14 October, U-47, under Kapitän-Leutnant Gunther Prien, penetrated the harbor defenses of Scapa Flow and sank the battleship *Royal Oak*. World War II had begun.

Opening Undersea Phase

Although the Nazis plunged into World War II with a larger force of superior submarines than were in the Kaiser's Navy, they were unable to equal the record of the German Navy in the first months of World War I. The strikes at the Royal Navy were spectacular and destructive, but the naval tonnage sunk was about half the total downed in the first 6 months of the previous war. The convoy system and the new antisubmarine devices immediately employed by the Allies held shipping losses in this period to about 200,000 tons monthly.

However, conquest of Norway gave the Germans a strong position on the northern flank of the British Isles. Then Holland, Belgium, and France collapsed; and Atlantic and Channel ports were available as U-boat bases. The impoundment of the French Navy forced the British to take over the Mediterranean defense. British submarines maintained Mediterranean

patrols for the next 3 years while the conflict raged in North Africa.

History Repeats

With strategic French, Belgian, and Dutch ports at their disposal, the U-boats stepped up their Atlantic offensive. In June 1940 the British, Allied, and neutral shipping loss was 397,000 tons. For the remainder of that year, the monthly average topped 350,000 tons. Neutral American shipyards had begun to work overtime, and merchantmen flying the Panamanian flag were carrying British cargoes. But losses were far beyond the British capacity to replace.

In September 1940 an appeal from England resulted in sending 50 overage American destroyers to that embattled isle in exchange for long-term leases on sites for naval bases in the Western Hemisphere.

Lend-lease went into effect in March 1941, and the United States became the "arsenal of democracy." With the passage of the Lend-Lease Act, the status of the United States shifted from neutral to nonbelligerent, and American naval patrols were extended to Greenland and Iceland.

To counter the air defenses of the waters around the British Isles and the Allied antisubmarine measures in the Atlantic, the U-boat command devised a new tactic—wolfpacking. This was a system of group control which permitted the submarines wide dispersion for search and strong concentration for attack. It also placed the group under the direction of an ace skipper whose talents would otherwise be confined to the operation of a single submarine. Roaming the open Atlantic, the scouts of the pack would contact a convoy. The pack would then assemble at some distant point on the convoy's track and lie in ambush. Night attacks were favored, and a mass assault on the convoy train was certain to scatter the escorts and allow some of the U-boats to penetrate the screen and strike at the milling transports.

In April 1941 U-boats sank nearly 600,000 tons of British-controlled shipping. The sinkings decreased in May, June, and July as the Anglo-American antisubmarine patrols tightened

the defense. But the defenses were by no means watertight. The Germans were maintaining an average of 36 submarines at sea in the summer of 1941, and the number of U-boats in the Atlantic was more than doubled late in the autumn. By October, Britain was once more in desperate straits, unable to cope with the submarine blockade.

As in World War I, England was slowly sinking, her maritime lifelines slashed by a U-boat offensive. Again the United States came to the rescue. But the present is never an exact replica of the past, and no two wars are ever alike. Open hostilities a certainty, the Nazis played for time, hoping to gain bases in the Azores and on the West African coast, and perhaps to bring Franco Spain in as an active partner before striking at America. The Japanese raid on Pearl Harbor was untimely.

In the Atlantic, World War II had already developed as a struggle between the U-boat and antisubmarine forces, following the pattern of World War I. In the Pacific, American submarines were to play a leading role. Their mission was an all-out attack on Japanese merchant and naval shipping, paralleling that of the U-boat in the Atlantic.

Battle of the Atlantic

During the first 10 months of 1942, the Battle of the Atlantic was in the balance. In this period the U-boats dealt their hardest blows, and Anglo-American losses totaled approximately 800 ships—better than 4,000,000 tons. At the same time, the U-boat force paid dearly for this success. In January 1942, 93 U-boats were operating in the Atlantic, and 40 more were available for duty in the Mediterranean and in the Barents Sea. This number was greatly reduced that spring and summer—an average of 43 U-boats operating continuously at sea in June. Altogether the Germans lost 78 submarines during this period. U-boat replacements were forthcoming, but the Germans were unable to replace trained crews, and Nazi submarines were going to sea with men who lacked adequate training. Nevertheless, the situation remained critical for the Allies until well into 1943.

Operating in wolfpacks in the North Atlantic, the U-boats were not easily downed. The modern U-boat was a formidable opponent. When depth-charged, it did not break up as did its riveted forerunner in World War I. Welded construction provided the pressure hull with elasticity, and a direct hit or an explosion close aboard was required to destroy the hull. Capable of diving deeper than 600 feet, the German submersible could usually elude echo-ranging sonar detection. Supply or "cow" U-boats were employed to provision the wolfpack submarine—a maneuver that lengthened their stay at sea. The destroyer escort and the escort carrier emerged as the wolfpack's deadly enemy.

It has been said, with due respect to the active combatants, that the Battle of the Atlantic was fought in the laboratories. German scientists who had been drafted to shoulder rifles were recalled from military service to help create Germany's Naval Scientific Directional Staff. This body had its counterpart in the American 10th Fleet (the coordinating agency for antisubmarine warfare) when Admiral King organized a scientific council composed of civilian scientists. Like the Axis scientific staff, the American council devoted its energies to the development of new submarine and antisubmarine weapons and devices.

The Germans produced an acoustic torpedo which "homed" on the target when attracted by ship noises. Another torpedo looped in wide curves, thereby increasing the possibility of a hit when fired into a convoy. The American answer to the acoustic torpedo was a "noisemaker" which was towed from the stern of a vessel to divert the torpedo.

To frustrate sonar, the Germans tried coating the U-boats with rubber—a resort that proved futile. They also employed *pillenwerfer*—chemical pellets which, strewn in the water, served to reflect the sonar beam from false targets.

Meantime, the Allies introduced sonobuoys which were dropped from planes; the buoys contained hydrophones and radio transmitters for broadcasting a signal to the plane when a submarine was within sonar range.

Probably the most important of the innovations was radar, described by Admiral Doenitz as "next to the atomic bomb, the most

decisive weapon of the war." Unless submerged the U-boat was unable to escape radar's all-seeing eye, and Doenitz mourned to the head of the Naval Scientific Directional Staff that the enemy had "rendered the U-boat war ineffective."

Frantically working to defeat this menace, German scientists came up with their most important contribution to the undersea war. This was the Dutch-invented snorkel extension stack—a tube which expelled the diesel exhaust and sucked in fresh air. Equipped with snorkel, the U-boat could operate on diesel propulsion while submerged at periscope depth. It did not have to surface to charge batteries; and its diesel engines, able to run under the surface, gave the submarine a much higher submerged speed than its motor-driven rivals. Moreover, the U-boats literally maintained radio silence, thereby frustrating detection by radio direction finders. The snorkel device went far to eliminate surface operation, and the U-boat thus regained its "invisible cloak."

Admiral Doenitz complained that the Battle of the Atlantic was lost before it began. Had Hitler paid more attention to the German Navy, he would have had 1000 U-boats instead of the 76 available at the beginning of the war. Fortunately for the Allies, Hitler's intuition was focused on land warfare. The Japanese, too, overlooked the potentialities in submarine warfare. Hence, they were unable to cope with the submarine forces of the United States in the Pacific.

The Pacific War

Because of the losses sustained at Pearl Harbor, Admiral Hart's Asiatic Fleet was compelled, almost singlehandedly, to hold the Philippines against invasion. The 29 Asiatic Fleet submarines were promptly deployed to defend the islands as Hart's few cruisers and destroyers could not hope to stop the Japanese 2nd Fleet. An equally staggering task faced the Pearl Harbor submarines which were expected to cover the vast Central Pacific from the Mandate Islands far north to Japan. And a few hours after the Pearl Harbor strike, U.S. submarines were ordered to attack all enemy shipping, merchant

as well as naval. For it was realized the Japanese invaders would move by ocean transport, and only cargo vessels could carry home the raw materials plundered from conquered territories. In no sense could such shipping be considered legitimate commerce, and our submarines were ordered to sink everything that floated under the Rising Sun.

The Pacific war was from start to finish a sea war. Seapower set the pattern and dictated the moves. Air and land forces played important roles, but sea forces played the lead. Overall submarine strategy called for a war of attrition against Japanese merchant shipping. As the attrition war developed, target priorities were altered and submarines launched an all-out offensive against the Imperial Navy, simultaneously conducting a blockade against Japan. Japanese shipping was the crux of the war situation—transports to support and maintain the offensive, and merchant fleets to exploit the conquered territories, support Japan's home economy, and supply the Tojo-Yamamoto war machine.

At the start of the war, Japan had available approximately 6,000,000 tons of oceangoing steel ships, some 4,000,000 tons being assigned to separate army and navy pools for transport and supply service. The remaining tonnage was necessary for the maintenance of Japan's home economy. Everything depended on the Japanese transport system—the carrying of troops and planes to the front, and cargoes of oil, coking coal, nickel, foodstuffs, and other necessary imports home to Japan.

The Japanese strategists made two fatal miscalculations. First, they underestimated the American recoil—the quick recovery of naval strength and repair of the fleet damaged at Pearl Harbor. Second, they underestimated the powers of the U.S. submarine force. As early as January 1942, Pacific Fleet submarines were sinking ships off the coast of Honshu and the toe of Kyushu.

The Japanese Submarine Effort

Japanese submarine strategy was, in general, inferior to the American. The Imperial Navy's

submarines were frequently employed by the army as transports; 15 were used to evacuate the hard-pressed garrison in the Aleutians. Others were used to carry munitions and aircraft to outlying posts, and late in the war, to haul aviation gasoline from the East Indies to Japan. American submarines performed such special missions, but not to the neglect of their primary mission—the attrition war on enemy shipping. In scouting and reconnaissance, Japanese submarines were competent, but there was no central operational command, and the submarine effort lacked coordination. Also, as the war progressed, Japanese submarines lagged “in the laboratory.” Japan's scientists were unable to match Allied developments in the fields of radar, sonar, and fire control. This scientific factor had its reflection in the antisubmarine war. As the Allied antisubmarine forces became organized, experienced, and more effective, Japanese submarines went down at a faster rate. The Japanese antisubmarine effort, on the other hand, was indifferent and poorly organized. In both aspects of undersea warfare—submarine and antisubmarine—the Japanese proved inept.

The Japanese had a good echo-ranging device at the war's outbreak, and their destroyers were fast and hard hitting, and the crews well trained. But their convoy system was jerry-built and remained disorganized until late in the war. By 1944 the Japanese were far behind in the field of electronic detection. A few radar-equipped search planes were flying antisubmarine patrols at the end of that year; but by that time the shortage of planes, trained pilots, and aviation gasoline was grounding the Japanese air effort.

One of the chief reasons for Japan's mediocre antisubmarine campaign was overoptimism. Submarine killings were reported on the flimsiest of evidence. American submarines were thankful for the cocksureness of their opponent and did nothing to dispel his exaggerated confidence. Altogether, the Japanese reported 468 American submarines destroyed during the war. Actually, American submarine losses totaled 52. Of these, 48 were lost in combat operations, but not more than 41 were destroyed by enemy action.

In comparison, the Japanese lost between 125 and 130 submarines during the war. About

110 of these were destroyed by enemy action. Twenty-six were downed by American submarines—over twice the number destroyed by aircraft—which established the submarine as a deadly hunter of its own kind. But American antisubmarine forces were far more aggressive and successful than the Japanese. Operating in May 1944, the destroyer escort *USS England*, in teamwork with the *USS George*, *USS Raby*, and *USS Spangler*, put on a performance that threatened to blast the Japanese submarine force out of existence. On a rampage in the Solomons, the *England* destroyed six Japanese submarines in 11 days—a feat that broke two world records. Fortunately for the Americans, the Imperial Navy had no such antisubmarine teams in the field.

U.S. Submarine Offensive

The U.S. submarine offensive began to hit its stride in 1943. Southwest Pacific submarines based in Australia patrolled from Fremantle and Darwin to the Gulf of Siam, harried Japanese shipping in the Netherlands Indies and Philippines, and slashed the main traffic lane down the South China Sea to Singapore. Central Pacific (SUBPAC) submarines roamed in the Gilberts, Marshalls, Carolines, and Palaus; patrolled the Nansei Shoto's chain; invaded the East China and Yellow Seas; and blockaded the home empire. The night surface attack was a favorite, and the "end around" tactic was developed with notable success—the submarine contacting a convoy and then running up ahead to attack it as it came down the track. In 1943 the Pacific and Southwest Pacific submarines sank 284 Japanese ships for a total of 1,341,968 tons.

During 1944, pacing the U.S. Navy's drive through the Mandates to the Philippines, American submarines all but decimated Japanese merchant shipping. Some 494 ships were sent to the bottom by submarine torpedoes—a staggering total of 2,387,780 tons. By the end of the year the Japanese home empire was facing a rice famine, Japan's war industries were scraping barrel-bottom for vital ores and chemicals, and the Imperial Navy and Air Force were out of oil. Closing in on Japan, our submarines had invaded the Japan Sea and were swarming in Empire waters.

Sinkings in 1945, January to August, were superficial. The enemy merchant marine was reduced to a point where there were few vessels at sea to sink. By the spring of 1945, Japan's economy was ruined.

Many daring harbor penetrations and attacks occurred in the submarine war on Japanese shipping. Outstanding were the raids conducted by the *Tang*, *Wahoo*, *Barb*, *Flasher*, *Seahorse*, *Tautog*, *Rasher*, *Silversides*, and *Trigger*. In the spring of 1945, the *Tirante* prowled into a Japanese harbor to sink shipping under the nose of the enemy's shore guns. Such forays were typical of the aggressive attrition campaign waged by American submarines throughout the war.

Perhaps the proudest accomplishment of the U.S. submarine force in World War II was the devastating blasting dealt the Imperial Navy. Before the end of the war, over 30 Japanese destroyers had fallen victim to U.S. submarines.

The first major warship sent to the bottom by submarine fire was the aircraft carrier *Soryu*, disabled by dive bombers in the Battle of Midway, then finished off by the *Nautilus*. The heavy cruiser *Kako*, sunk by S-44 off New Ireland on 10 August 1942, was the next major sinking. In December 1943, the *Sailfish* torpedoed and sank the escort carrier *Chuyo* on the road between Truk and Honshu. But 1944 saw U.S. submarines wading into an all-out drive against the Imperial Navy. Highlighting this tremendous undersea offensive were the following submarine successes:

Aircraft carrier *Shokaku*—sunk on 19 June by the *Cavalla* in the Philippine Sea; aircraft carrier *Taiho*—sunk on the same day in the same area by the *Albacore*; aircraft carrier *Shinano*—sunk on 29 November by the *Archerfish* off Honshu; battleship *Kongo*—sunk on 21 November by the *Sealion* off Formosa; aircraft carrier *Unryu*—sunk on 19 December by the *Redfish* in the East China Sea. In August and September of that year, the *Rasher* and the *Barb* sank the escort carriers *Taivo* and *Unvo*. Submarines *Dace* and *Darter* sank a pair of heavy cruisers in Palawan Pass on 23 October. The *Ray* sank another on 6 November, and eight light cruisers were demolished by American submarines during the same year.

The final submarine score tells a never-be-forgotten story. During World War II, American submarines in the Pacific sank 178 Japanese merchant vessels and 201 Japanese naval vessels, for a grand total of 631,117 tons. American submarine casualties—374 officers and 3131 men—were high. But the achievement stands as a monument to the greatest submarine force in history.

Submarine Special Missions

From the start of the Pacific war, U.S. submarines proved their versatility as blockade-runners, transports, scouts, passenger carriers, and rescue vessels. During the Solomons offensive, the submarines of Task Force 42, based at Brisbane, Australia, supported the operations of Admiral Halsey's fleet with scores of special missions. Secret agents were landed on enemy-held islands, refugees were evacuated, and enemy naval bases were reconnoitered.

Submarines *Nautilus* and *Argonaut* carried Carlson's Raiders to Makin Island. A few months later, the *Nautilus* and *Narwhal* were transporting troops to the front in the Aleutians. Submarines evacuated many Army and Navy officers and men from the Philippines, and rescued several hundred refugees during the Japanese occupation. Typical of the missions in that area were the blockade-running junkets of the *Narwhal*, rushing supplies and equipment to the guerrilla forces in the islands.

After the Gilberts campaign, all amphibious strikes in the Marshalls, Carolines, Bonins, and Iwo Jima were preceded by submarine reconnaissance missions. Periscope photography was a feature of these exploits, and assigned tasks included weather reporting and exploration of beachheads. Submarine guarding was an enterprise in which the U.S. submarine force took particular pride. Beginning with the Gilbert Islands offensive, submarines were stationed off target objectives to serve as lookouts and rescue downed aviators. This activity was continued with singular success for the remainder of the war. During air strikes, the submarine *Tigrone* rescued 31 aviators, *Tang* rescued 22, *Gabilan* and *Guavina* each rescued

17. Altogether 504 airmen were saved by lifeguard submarines.

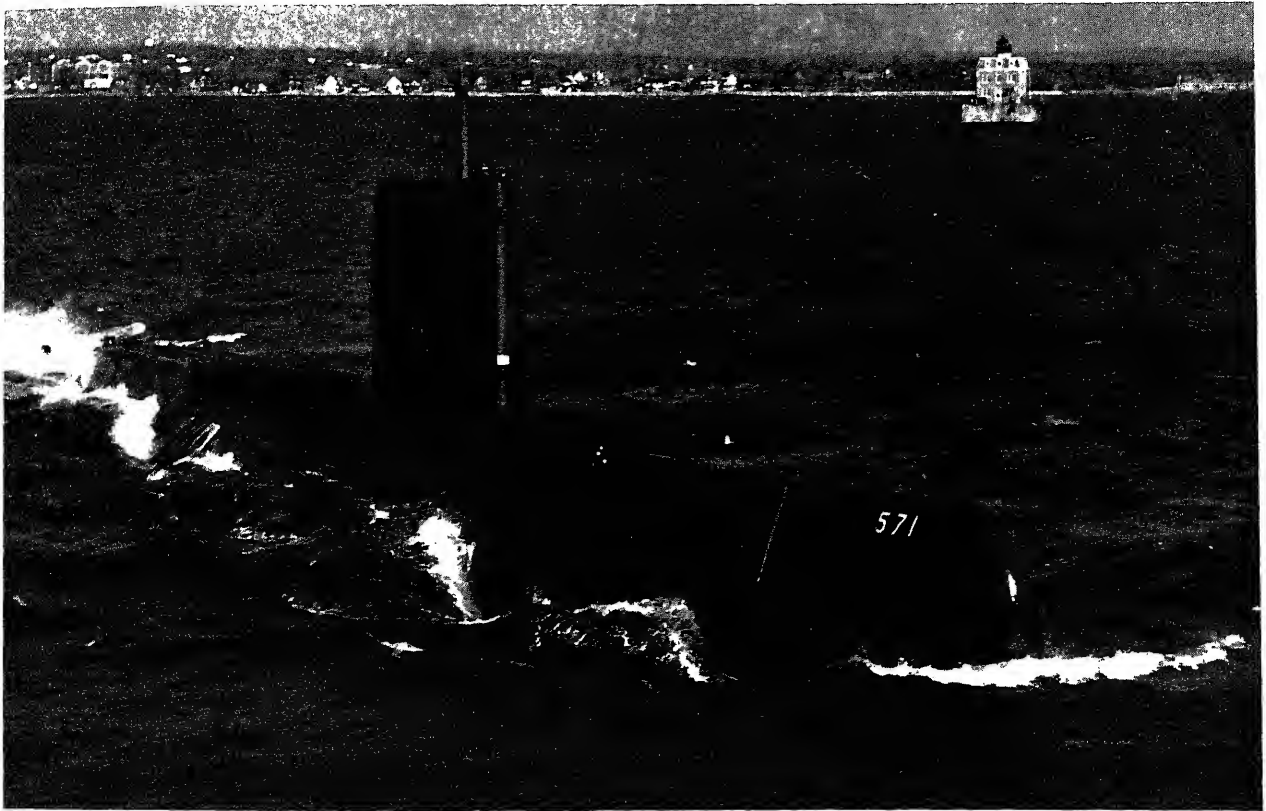
SUBMARINE DEVELOPMENTS SINCE WORLD WAR II

Submariners have long dreamed of a true submarine—a submarine that can operate beneath the surface almost indefinitely, thereby reducing risk of detection to a minimum. The development of the submersible to the ultimate goal of the true submarine has been a problem of pushing back certain barriers that limit prolonged submerged operations. As one barrier has been technologically overcome, others have appeared; and those difficulties, in turn, have had to be resolved. Each victory along the way has contributed to increased submerged operating time, bringing the goal a little bit closer to realization.

The first submarine, powered by hand, was limited by the endurance of the crew and was necessarily handicapped by the small amount of air available. When motors powered by batteries made their appearance in larger hulls with more space per man, air and human endurance ceased to be the most pressing problem. Rapid depletion of power stored in inefficient batteries required that the batteries be frequently recharged. More efficient batteries and propulsion systems increased both surfaced and submerged cruising ranges, but the boat still had to surface and run its diesel engines to recharge batteries. During wartime in enemy waters, recharging was accomplished at night, but it was always accompanied by danger of being detected. This situation persisted through World War II. With the advent of the snorkel, however, surfacing to recharge was no longer necessary.

Snorkeling presents some disadvantages; for example, it is noisy and interferes with the submarine's own sonar operation and, when compared with battery operation chances of being detected are much greater. However, its advantages far outweigh its disadvantages.

While use of the snorkel enables a submarine to stay submerged almost indefinitely, the submarine is restricted as to depth by the length of the snorkel mast, and as to submergence time



71.1

Figure 21-2.—USS Nautilus (SSN-571), the world's first nuclear-powered combatant ship.

by diesel engines which require fuel. Therefore, it was not until our first nuclear-powered submarine, *Nautilus* (figure 21-2), was built that the dream of a true submarine was nearly realized. At last the U.S. had a submarine that could submerge and operate for weeks without surfacing. Fuel capacity was no problem; *Nautilus* refueled for the first time over a year after she commenced operating.

But even more was needed than *Nautilus* had to offer. Underwater navigation had always been a problem and increased submerged operating capabilities made the problem more acute. A method of navigation was needed which would allow a submarine's commanding officer to take her from one place to another and to position her precisely while submerged. The development of the inertial navigation system which

accurately records a vessel's various courses and speeds over the Earth, while not completely solving the problem, was a great stride forward. This system, which requires only an occasional check and adjustment, enabled *Nautilus* to make her precedent-shattering cruise beneath the polar icecap. It also enabled *Skate* to spend 10 days conducting an extensive exploration for undersea routes beneath that same icecap. Nuclear power and the inertial navigation system made the forbidding, icebound Arctic Sea another operating area for U.S. submarines.

Submarine research and development do not stop here, however. Hardly any item which can be improved upon has been overlooked. Improved hull designs have increased speed and maneuverability. Improved homing torpedoes and wire-guided torpedoes can hunt down and

kill enemy submarines. Ballistic missiles have added shore installations to the list of submarine targets.

On 10 April 1963, the loss of *Thresher* (SSN-593) initiated a series of events that were to open a new era in submarine development. The ensuing search for the *Thresher* in 8000 feet of water glaringly revealed that the Navy did not have adequate equipment to affect submarine rescues in even much shallower waters. Furthermore, the scarcity of oceanographic knowledge became painfully evident as the search dragged on for months. As a result, a new emphasis was placed on all aspects of oceanography, not only in the Navy but also on the national level. A Deep Submergence Systems Project Office was established to develop a deep submergence research vehicle (DSRV) and a small, deep-diving submarine to remove men from sunken craft. A number of small research and salvage vehicles were also procured which proved invaluable in 1966 during the search for the lost H-bomb off Spain.

Submarines have always been thought of as lone wolves sent to patrol a particular area for the purpose of sinking enemy surface ships. Primary targets were the ships that carried the means for waging war—the tankers, the troopships, the supply ships. Destroyers, fast and deadly, were considered hardly worth the risk of attack. The rule of the day was to bore under escorts to attack the convoy. Nevertheless, World War II submarine skippers drove home attacks on destroyer after destroyer and sent dozens to the bottom, demonstrating that destroyers too were susceptible to submarine attack.

With the marriage of nuclear power and the "teardrop" shaped *Albacore* hull, the modern submarine gained a tremendous advantage in speed, maneuverability, and endurance over nearly all surface craft. These factors, coupled with the fact that a submarine is an inherently better sonar platform than a surface ship, led to the development of the *Thresher*, *Tullibee* (SSN-597), *Sturgeon* (SSN-637), *Narwhal* (SSN-671), and *Los Angeles* (SSN-688) classes of attack submarines designed primarily for ASW work. With these craft, the submarine has replaced the destroyer as the single most effective antisubmarine unit.

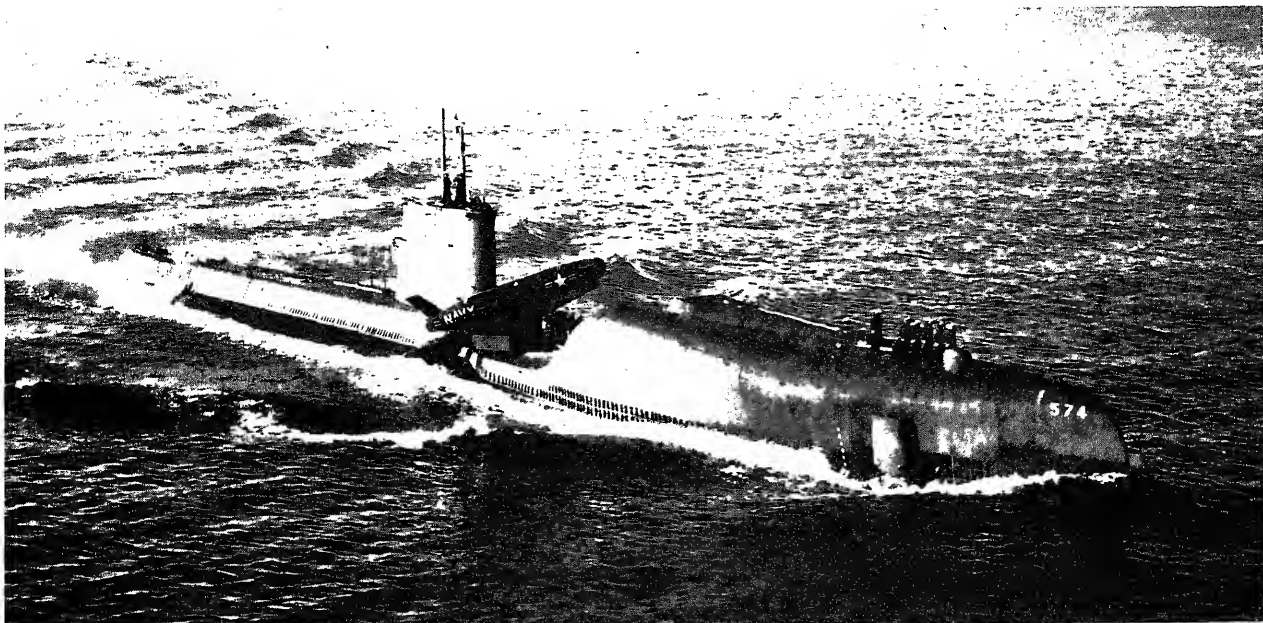
Dependent on situation, past experience, and potentialities, concepts of warfare change. In this age, faced by a possible enemy possessing a submarine force estimated at between 450 and 500 submarines, antisubmarine warfare is the primary mission of our submarine forces.

Other wartime duties include destroying enemy shipping and naval forces, scouting, rescue work, transporting raiders, and possibly carrying ammunition and supplies to beleaguered friendly forces. The fleet ballistic missile submarine's mission is to destroy military targets on land.

Development of the Fleet Ballistic Missile Submarine

In 1955, the Chief of Naval Operations ordered the development of a weapons system capable of launching a missile from a submerged submarine and able to hit any point on the Earth's surface with a nuclear warhead—an engineering feat of complexity unprecedented in history. This was not to be the first time that bombardment missiles had gone to sea, of course. The Germans had envisioned towing V-2 rockets in floating cannisters behind U-boats, but this concept never became operational. *USS Barb* (SS-220) bombarded the Japanese coast with 5-inch rockets in 1945. The Regulus air-breathing missile had been fitted on a few World War II submarines (figure 21-3) in postwar conversions. Following the success of those conversions, two attack submarines, *Grayback* and *Growler*, were converted to carry Regulus I and II air-breathing missiles. *USS Halibut*, the first nuclear submarine constructed to carry missiles, carried five Regulus I or four Regulus II missiles. These three submarines, with the converted World War II boats *Barbero* and *Tunny*, were deployed in the Pacific on regular patrols during the period 1959 through 1964. Success of the Polaris missile development resulted in cancellation of the Regulus II missile program.

There were three basic components to the envisioned system—missile, launching platform, and a navigation system that would enable the ship to determine its position continuously under all conditions.



71.1

Figure 21-3.—Before the advent of the Polaris missile, U.S. missile submarines launched the air-breathing Regulus, shown here on USS Greyback, then as SSG.

The project got underway with a plan to adopt the Army's Jupiter intermediate range ballistic missile (IRBM) to a nuclear submarine. It soon became apparent that this was impracticable because (1) the land-based missile was too large for effective shipboard use, and (2) its liquid fuel was too volatile and difficult to handle in the confinement of a submarine hull. Developments in the field of nuclear warheads, however, indicated that a thermonuclear device could be constructed for a much smaller missile. Accordingly, the fleet ballistic missile (FBM) program was initiated to develop a solid-fueled missile for submarine use, the submarine to which it would be adapted, and the appropriate navigation system.

To speed up the process, work progressed simultaneously on all components without waiting for each to be tested and proven—an unprecedented procedure. The missile airframe was assigned to Lockheed; Aerojet General and Hercules Powder Company developed the propellant; while Sperry Gyroscope Company worked on the ship's inertial navigation system

(SINS), a device that utilizes a set of accelerometers that can sense changes in the direction of motion. Once "told" where it is by a navigational fix, the SINS keeps track of ship's latitude and longitude by itself. At the Electric Boat Division of General Dynamics Corporation in New London, Connecticut, a new *Skipjack* class attack submarine (*Scorpion* (SSN-589)) was on the way. To expedite construction of a launching vehicle, the 252-foot missile section was inserted amidships. Containing 16 launching tubes, this area was designated the missile compartment. The submarine was renamed *George Washington* (figure 21-4) and redesignated as SSBN-598, thus establishing the nomenclature of famous American patriots for FBM submarines and breaking the convention that submarines are named for fish.

A prototype Polaris missile was first flown in September 1958. The SINS was evaluated by *Nautilus* and *Skate* in transpolar crossings in 1958. *George Washington* was launched on 9 June 1959—barely 18 months after she was ordered.

NAVAL ORIENTATION

In July 1959 *Observation Island* (EAG- (now AG-) 158), which served as a research and development vehicle in support of the Polaris light program, became the first ship to fire a Polaris at sea.

It had originally been planned that Polaris would be an intermediate range (1500-2000 mile) missile. In the interest of expediency, however, Lockheed indicated that it could develop a 1200-nautical-mile missile much sooner than a longer-range missile. By proceeding on that basis, it was possible for the Navy to deploy the weapons system a full 4 years ahead of the original target date. Thus was born the concept of the A-1 (1200 nautical miles), A-2 (1500 nautical miles), and A-3 (2500 nautical miles) Polaris, each of which became operational as the state of the art permitted.

The A-1 passed its most important test on 10 July 1960 when the *George Washington*, submerged off Cape Canaveral, successfully launched two missiles to their targets. On 15 November 1960 *George Washington* deployed

on her first 60-day patrol, and the FBM system was operational. *Patrick Henry* (SSBN-599), the second ship of the class, had joined her on station by the end of 1960, followed in the next 8 months by three other A-1 ships.

In October 1961, *Ethan Allen* (SSBN-608), first of the second generation SSBNs, fired the first submerged A-2. She deployed with this 1500-mile Polaris missile in 1962.

The A-3 prototype was launched in April 1963. The *Daniel Webster* (SSBN-626), one of the third generation ships, fired the first submerged shot in October of that year and took A-3s with her on her first patrol in September 1964. Three months later FBM submarines deployed in the Pacific. With a 2500-nautical-mile range, the FBM system was now a global deterrent, capable of reaching any point on the Earth's surface from hundreds of miles at sea. The A-1 and A-2 have since been phased out.

Forty-one FBMs were authorized and the last, *Will Rogers* (SSBN-659), deployed in 1967.

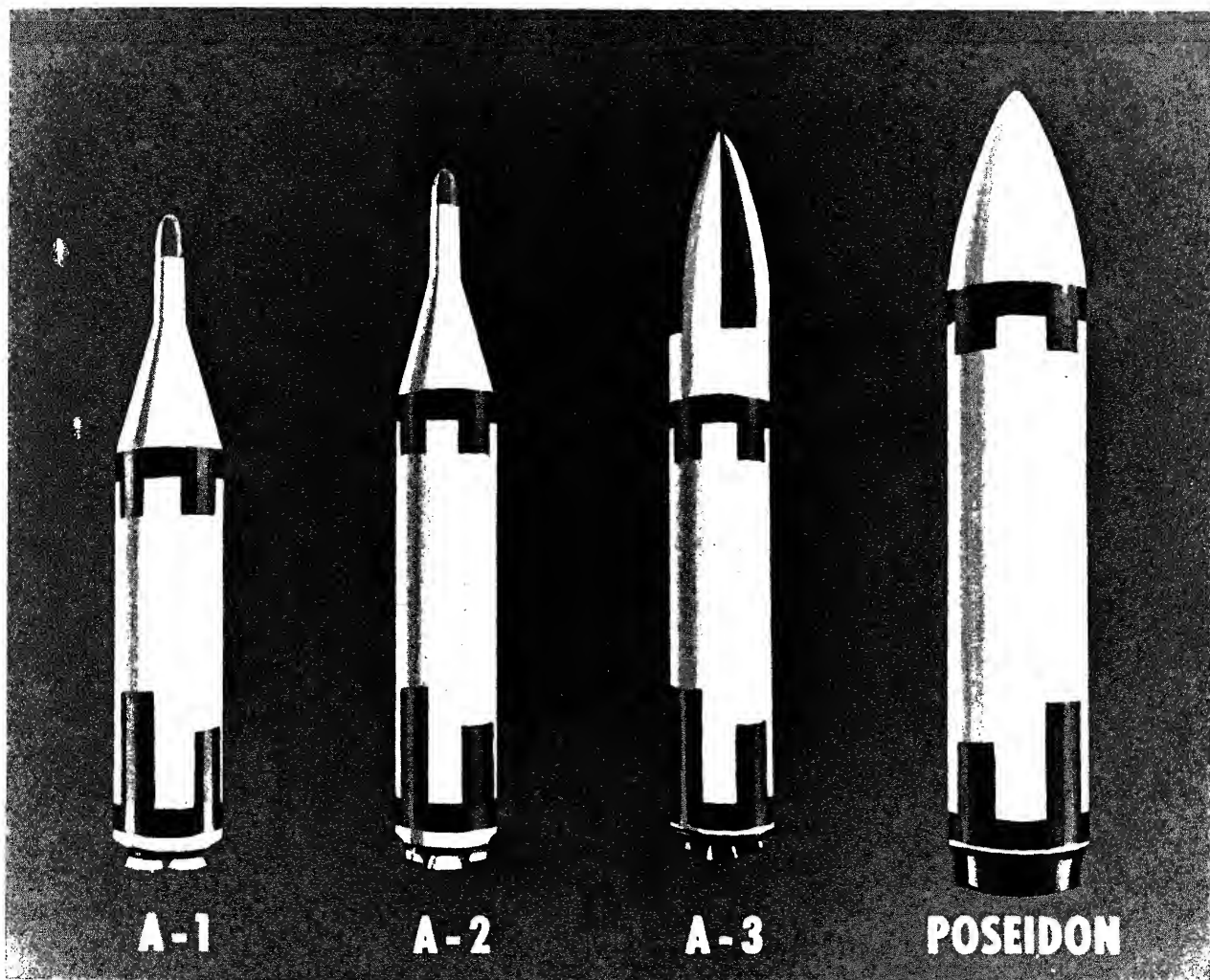


Figure 21-4.—USS *George Washington* (SSBN-598), the first fleet ballistic missile submarine, now configured to carry

The 31-ship *Lafayette* class has been converted to carry the Poseidon C-3 missile which has double the payload of the A-3 plus increased accuracy and flexibility. (See figure 21-5.)

Under development, and expected to be operational in the late 1970s, is the new Trident undersea nuclear weapons system, with its longer-range missiles, larger submarines, and complete U.S. "home ports," increasing combat readiness and cutting operating costs of the FBM force.

The Trident missile (the entire weapons system, including submarines, missiles, and base, is named "Trident") will be capable of reaching enemy targets from both the Atlantic and Pacific Oceans, thus making expensive overseas ports unnecessary for Trident submarines. In addition the Trident I missile will be compatible with our present Poseidon submarines. This will increase their missile range to 4000 nautical miles as opposed to the present 2500. Both the Poseidon and Trident missiles have a multiple warhead capability.



Fleet ballistic missile submarines operate on 20-day rotational cycles. During their submerged patrols they operate completely undetected. They are permitted to receive messages, but not to respond. They are manned by two complete crews—Blue and Gold—each consisting of about 140 officers and enlisted personnel. In a typical cycle, a crew will take its ship on a 2-month patrol, return home for roughly a month's leave or rest and recreation, begin a month of refresher training ashore, rejoin the ship for refit, and begin another deployment. While one crew is ashore, the other is on patrol with the ship. With such an operating schedule, approximately half of the submarines are always on station while the remaining half are undergoing overhaul or refit.

To cut transit time to station, the submarines deploy from several advanced bases overseas: Holy Loch, Scotland; Rota, Spain (FBM submarines will not deploy from Rota, Spain after 1979); and Apra, Guam. Charleston, South Carolina, also is a major base. They are served at each of these stations by submarine tenders converted or specially built to handle the FBM weapons.

SUBMARINE TRAINING AND DUTY

Because submarines are considered "good" duty, there always is a long list of volunteers. Only the best of these volunteers are selected, or they must meet rigid physical and mental requirements.

Once selected, both officers and enlisted personnel are sent to the submarine school in Groton, Connecticut, where they receive general indoctrination courses that cover such subjects as submarine history; torpedoes; methods of escape from disabled subs; and ballast, trim, air, hydraulic, and other systems of a typical submarine. In addition, officers' courses include diving and surfacing, attack procedures, tactics, shiphandling, electronics, engineering, fire control, and sonar. While undergoing this training, they are observed to insure that they are psychologically suited for submarine duty.

Even after reporting aboard his first submarine, an officer or enlisted person has much to learn before he can qualify as a submariner. Each person is required to have a superior knowledge of his own job and a working knowledge of his shipmates' jobs as well. As enlisted person may qualify in 6 or 7 months, but an officer normally takes a year. He qualifies for OOD watches and learns how to dive and surface. He practices shiphandling, navigation, approaches, attacks, and landings. He also learns how everything on the submarine operates. On nuclear submarines he also qualifies as engineering officer of the watch.

At the end of the year, the officer demonstrates his knowledge of the submarine and its equipment and his proficiency in all phases of submarine handling and operations to a board convened by his squadron commander. If he successfully passes the examination, he is then designated "qualified in submarines." After qualifying the newly qualified officer may wear the gold dolphins of the submariner.

Submariners move about in a more relaxed atmosphere than is found on most surface vessels. There is little ceremony aboard a submarine and strict protocol usually is not observed. Yet capable, well-trained officers have the respect of the crew and discipline does not suffer thereby. This, coupled with the confidence the officers place in the equally capable and well-trained crewmembers, maintains an esprit de corps which is possibly greater than that enjoyed by any other branch of the Navy.

MINE WARFARE

Mine warfare may be divided into defensive and offensive mining and countermeasures. Defensive mines are planted to protect a nation's own harbors and shorelines. Offensively, mines may be used to bottle up enemy harbors, to render strategic or convenient shipping routes dangerous or even useless, and to make the enemy divert ships, equipment, and personnel to minesweeping chores. By spreading the minefields over as wide an area as possible, and by using several different types of mines, the minesweeping problem is made more

formidable, and safe shipping routes become more and more difficult to maintain. Offensive minefields also shunt enemy shipping through areas where it may be more readily attacked by friendly forces.

Countermeasures comprise all methods of countering the enemy's mines, including self-protection for ships and clearing channels and fields of the mines themselves.

Although the mine (originally called a torpedo) did not come into general use until the Civil War era, efforts to produce an explosive charge that could be detonated under or against the hull of an enemy ship were begun in the early days of gunpowder. The progenitor of the modern mine was Bushnell's powder keg set adrift on the Delaware in December 1777, its target the blockading British squadron downstream. An unfortunate current and a mossbacked officialdom defeated this Yankee invention. It remains on record, however, as the first contact mine of the floating type to enter the American service.

Farragut's penetration of Mobile Bay remains one of the more dramatic episodes in the history of mine warfare. The Confederates blocked the wide entrance to Mobile Bay by piling, which forced shipping to navigate a channel under the guns of Fort Morgan. This channel was planted with about 180 mines which were strung out in lines designed to leave a narrow passage within pointblank range of the shore batteries. Left open for Confederate vessels, the passage was considered a deadly trap for the enemy invader whose ships would be squeezed between the "torpedo" lines and the fort. It was into this bottleneck that Farragut boldly ordered his Federal squadron.

This use of mines to force enemy shipping into a channel covered by shore batteries was an early demonstration of a mining tactic that later became standard. Given a more reliable model with a better explosive device, the Confederates might have frustrated Farragut's attempt. With one death-dealing exception, the Confederate "torpedoes" proved duds. Long immersion in saltwater had caused them to deteriorate and

Farragut had ordered his ships to stay in deep water and to move steadily forward, making no turn until the "torpedo line" had been passed. Equipped with gear to pick up the mines, the *Brooklyn* led the parade of wooden warships. A column of monitors, led by the *Tecumseh*, moved on the flank. Someone mistook the orders, and the monitor *Tecumseh*, veering off to fire at a Confederate ironclad, struck one of the submerged mines. There was a thunderclap explosion, and the Federal monitor went down. The *Brooklyn* tried to turn away and blocked the advance. A hot fire from Fort Morgan raked the disorganized line. Farragut heard the cry, "Torpedoes!" The old admiral shouted from his flagship's rigging. "Damn the torpedoes! Full speed ahead!"

As the Federal warships pushed on, their crews heard the scrape of iron against keel and the snapping of primers and kicked trigger-mechanisms. But the watchdogs failed to bite—not another torpedo exploded. Thus was dramatized the problem of mine deterioration, a baffler that modern science has not yet entirely solved.

OPERATIONS IN WORLD WAR I

During World War I both Allied and Central Powers engaged in extensive mining operations. Turkish mines laid in the Dardanelles frustrated a British-French attempt to penetrate the Sea of Marmora in March 1915. By fending off the Allied thrust, the Dardanelles minefields enabled the Turks to strengthen their fortifications, and as a consequence the British drive on Gallipoli ended in costly failure.

Throughout the war, German mines imperiled British shipping in the Channel. British efforts at offensive mining, notably in Heligoland Bight, were frustrated by efficient German minesweepers supported by the High Sea Fleet. The clearing of enemy minefields became a major endeavor of the rival navies. Standard mine of the war was the spherical model studded with warlike "horns"—an anchored contact mine. In an attempt to

paravanes and Otter gear, which utilized a sweep wire, extending from the side of the sweeping ship, along which are spaced wire- or chain-cutting devices. Paravanes, now obsolete, could be streamed from the bow of almost any ship for self-protection. Otter gear, specifically designed to assist in clearing fields of moored mines, is attached to the end of the sweep wire to divert the sweep from the side of the sweeper and to hold down the outboard end of the sweep wire.

The tremendous North Sea mine barrage climaxed the mining operations of World War I. The American antenna mine implemented this endeavor which spelled defeat for the U-boat. No less than 57,000 of these mines were planted by American minelayers, and some 13,000 by the British. Premature explosions hampered the effort, but the enormous field was sufficiently lethal to turn back the 1918 U-boats.

OPERATIONS IN WORLD WAR II

Mine warfare of World War II featured submarine and aircraft mine plants. Defensive mining was carried out in the main by the conventional types of surface minelayers, and mine clearance was accomplished by surface craft with special minesweeping equipment. Countermeasures included novel devices for protection and detection. For the most part the Allies were able to keep their mine losses within acceptably low limits.

In the opening months of the war, Nazi submarines and aircraft sowed deadly fields off the English and Scottish coasts. During November and December 1939, a number of British ships were sunk by this mine barrage which was particularly heavy in the Thames Estuary. So the Allies encountered one of Hitler's secret weapons—an influence mine that was exploded by the action of a magnetic needle coupled to a detonating mechanism and activated by the magnetic field of a steel-hulled ship. The Nazis employed a variety of these mines. But the magnetic mine was hardly in action before the British produced successful countermeasures.

One of these was the degaussing belt, a system of electrical cables which were fastened to the hull of a steel ship and carried currents of electricity that neutralized the ship's magnetic field. The device developed as a major anti-mine shield for Allied shipping in the war. Degaussing and sweeping together successfully countered the magnetic mine, and Nazi offensive mining operations were a disappointment to the Axis leaders.

When the United States entered the war, the Allies, faced with the problem of mounting an offensive, were confronted by Japanese minefields in the Pacific, and enemy fields guarding the European Atlantic coast and Mediterranean.

Hitler boasted that his forces would repel any assault on his Atlantic wall in exactly 9 hours. Shoring up that wall were complex minefields which extended from Norway to Spain. As a preliminary to the Normandy landings in June 1944, the Allies conducted intensive minesweeping operations. Also into action went the famous UDTs (underwater demolition teams) which had their origin in the amphibious campaigns of the Pacific. The task of clearing underwater obstacles and mines by demolition charges carried in and planted by swimmers was a Homeric endeavor calling for the utmost in courage, skill, and physical endurance. In their mine-clearing exploits, the American UDTs performed some of the great feats of the war.

That mines remained a dangerous threat to the last is evidenced by American ship losses off Normandy where three destroyers, a destroyer escort, two minesweepers, two transports, a submarine chaser, and a number of landing craft were sunk—most of them by mines.

In the Pacific, as in the Atlantic, the combatants employed minefields to defend their major bases and harbors, and laid offensive fields to destroy or divert enemy shipping.

U.S. submarines laid the first Allied offensive minefields in the Pacific in October 1942. For our submarines, minelaying was a secondary, but successful, enterprise. A total of 658 mines, laid by 34 submarine sorties, resulted in 43 reported Japanese ship casualties, of which

24 were sunk and 19 damaged. Submarine mining continued until May 1945, by which time profitable locations for such mining had almost disappeared.

In the Pacific a few PT boats operated as special minelayers. A squadron of new 220-ton destroyers being built were refitted as fast DMs (destroyer minelayers).

In March 1945 the 20th Air Force, using B-29 aircraft, began a mine campaign designed to end shipping in Japanese coastal waters. Major target was Shimonoseki Straits. Eventually all important Japanese and Korean seaports were mined by the B-29s, and over 670,000 tons of shipping were sunk or disabled by this tremendous barrage. The Japanese were unable to clear the clogged channels. The mines dropped (acoustic, magnetic, and pressure-magnetic) were not easily swept, and the Japanese lacked equipment for the task. Japan's war effort was expiring when the mining offensive was launched against her. Technologically weak to begin with, the Japanese were unable to produce first-class mine countermeasures.

The Japanese laid a vast minefield in the East China Sea, west of the Nansei Shoto; and throughout the war this field protected their shipping in that area. Japanese mines also were scattered in the Yellow Sea, and minefields effectively guarded the entrances to the Sea of Japan until the closing months of the war. The loss of three American submarines was almost certainly caused by mines, and five others that failed to return from patrol may have been destroyed by mines.

Allied minesweepers performed ably in the Pacific. Special mine-disposal units joined in the clearance tasks, and shallow-draft landing craft were fitted with light emergency sweeping gear to assist in these operations.

Elaborate systems developed whereby friendly forces were informed of mine locations, and channels were provided for safe passage. Mine plants were authorized only when approved by area commanders in accordance with planned naval operations. Responsibility

mining operations. Many of the mines employed in World War II were designed to aid eventual clearance; the mines incorporated "sterilizers," which are devices that render mines incapable of operation after a preset time. Nevertheless, mines sank or damaged several hundred ships after World War II ended.

In summary, mine warfare was reaching an offensive peak when hostilities were ended in the Pacific. In a little less than a century, the mine had developed as a potent undersea weapon. Employed offensively and defensively, it had turned the tide of battles, frustrated invading forces, and destroyed naval vessels of the largest class.

OPERATIONS IN THE VIETNAM CONFLICT

On May 1972, nine sorties of A-6 and A-7 aircraft dropped 36 mines in the channel of Haiphong in one of the most strategically effective operations of the Vietnam Conflict. None of the 29 trapped major merchant ships was sunk. However, those ships were out of action for the duration of the conflict. The effectiveness of the coastal mine campaign demonstrated the vulnerability of a country which has little or no minesweeping capability. Thus the mining campaign provided a potent lever to U.S. negotiations both before and after the Peace Agreement.

From the beginning, the possibility of U.S. forces having to sweep the mines was a factor which influenced the types of mines used, their settings, and to a lesser degree their locations. As a result, when it came time to sweep, we knew everything about the mines and had purposely planted mines which could be swept easily and effectively by our mine countermeasures forces. The vast majority of the mines were programmed to self-destruct and the remainder to become inert after a given time. Thus, even as the mines were dropped, the process of mine removal had been started.

OPERATIONAL MINES OF TODAY

operation (controlled or automatic), type of detonating mechanism (contact or influence), and method of planting (surface craft, aircraft, or submarine).

Moored mines are characterized by buoyant cases maintained at predetermined depths by mooring cables attached to anchors. Since depths can be controlled by the lengths of the moorings, the mines can be planted in either shallow water against small craft, or in deeper water against surface ships and submarines. (See figure 21-6.) Bottom mines are nonbuoyant and thus lie on the sea bottom. When used against surface ships, they must be laid in water shallow enough so that their explosive charges will be effective against those vessels.

Controlled mines, no longer used by the United States, could be fired by a person on shore when he observed (visually, by radar, by detectors in the mines, or by other means) that an enemy ship was near the mine. Some mines of this type were designed so that they could be set to fire automatically. An automatic mine fires automatically when its firing mechanism detects that a ship is near.

Actual contact of a ship with a mine or one of its component parts (such as an antenna) is required to detonate a contact mine. One of the most common contact mines is equipped with lead horns encasing glass tubes containing an electrolyte. When a horn is bent, the glass tube is broken, and the electrolyte flows into a battery cell, generating enough current to fire the mine.

Influence Mines

There are three basic types of influence mines—magnetic, acoustic, and pressure—but firing mechanisms of two or all three of these may be combined in one mine, making it more difficult to sweep.

MAGNETIC.—The induction type uses a search coil instead of needle. When a moving magnetic field cuts the search coil in such a manner as to induce a current in the coil of sufficient strength to operate a relay, the firing circuit is actuated and the mine detonates.

ACOUSTIC.—An acoustic mine is actuated by sound waves caused by a ship's propellers,

machinery, or hull vibrations striking a sensitive microphone in the mine. The mechanism operates in much the same way as an eardrum when a sound wave causes it to vibrate and send an impulse to the brain.

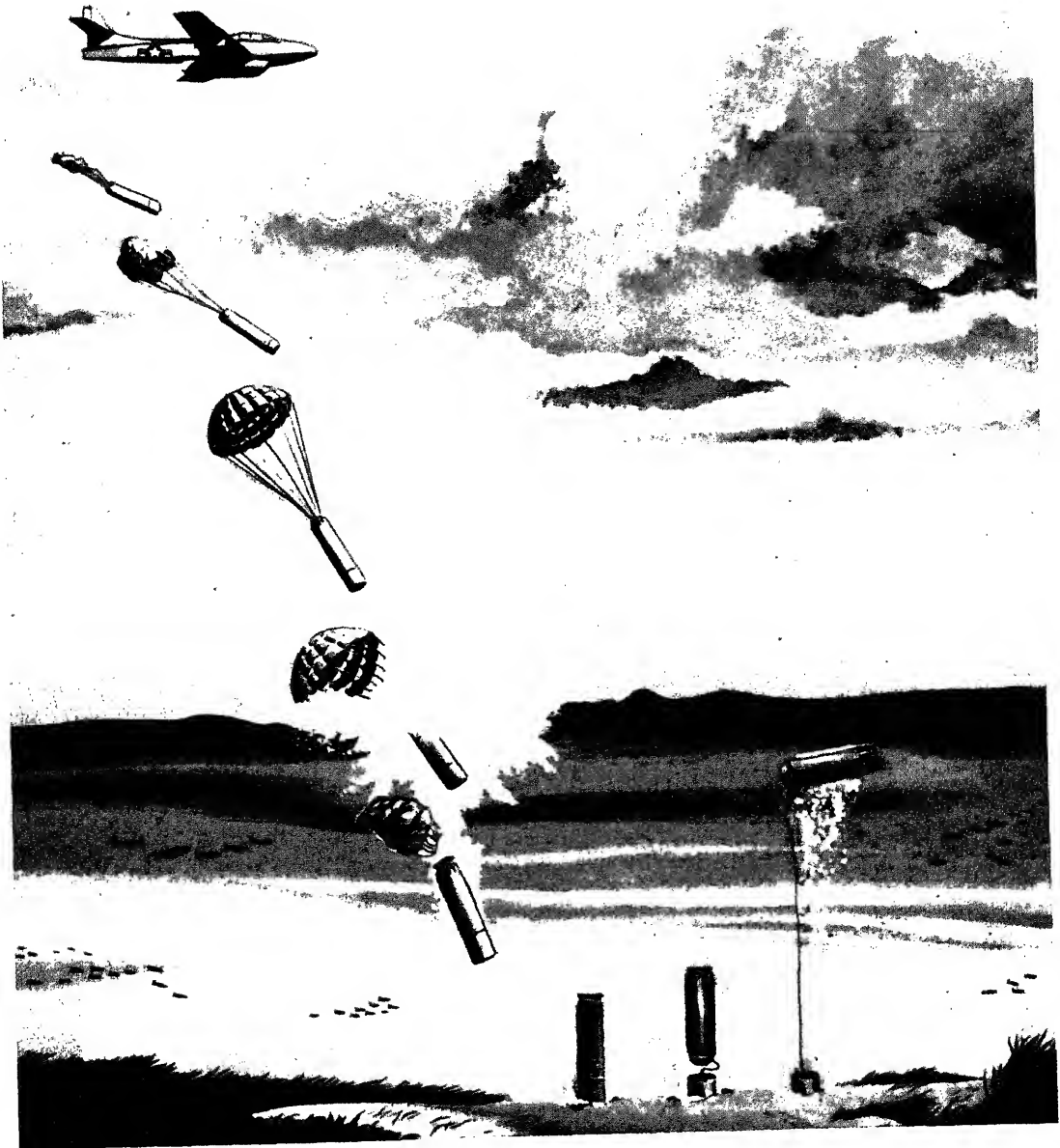
PRESSURE.—The pressure mine makes use of the Bernoulli principle; i.e., fluid flowing from a larger area through a smaller area caused a reduction in pressure in the smaller area. In practice, the ship moves instead of the water, but the effect is the same. In water which is not too deep, a fast-moving ship causes a rapid reduction in normal underwater pressure. The reduction in pressure moves a diaphragm in the mine that closes contacts. This allows a current to flow, thus firing the mine.

COMBINATION MINES.—There are many variations of the foregoing mines, and in addition there are combination mines that require two or more types of influence before they will explode. For example, the pressure influence may close a switch, but the mine will not detonate until it also is influenced magnetically.

MINE COUNTERMEASURES (MCMs)

The two most important general types of mine countermeasures are sweeping and hunting. Minesweeping is done by going over the mined area with mechanical sweeps that physically remove the mines (for example, by cutting mooring cables of moored mines) and with influence sweeps which provide the influence fields necessary to actuate influence mines. In addition to minesweeping ships and craft, helicopters are used to sweep mines. Mine-hunting involves going over an area with mine detecting equipment that will find the mines, which are then removed by divers or destroyed by explosive charges.

With less emphasis being placed on minesweeping ships, the helicopter has been developed into an effective minesweeping vehicle for coastal operations. Inherent characteristics that make the helicopter attractive as an MCM vehicle are its speed, safety, maneuverability, flexibility, and freedom



134.205

Figure 21-6.—Planting a moored mine.

from sea limitations. The characteristics, however, that limit its effectiveness include payload and weight restrictions, relatively short time on station (fuel capacity), and crew endurance. With the development of specialized

minesweeping equipment that can be streamed and recovered from the air and with the advent of larger, more sophisticated helicopters which are capable of lifting loads of large volume and weight and which have good towing capability,

the airborne MCM has assumed a major role in countering the sea mine, particularly in shallow waters.

Sweeping Moored Mines

The U.S. Navy uses several types of sweep gear for sweeping moored mines. In the most common type, a wire cable (sweep wire) is towed through the water deep enough to strike the mine mooring. The mine mooring then slides along the sweep wire until it engages one of several cutters spaced at intervals along the sweep wire. The cutter severs the mooring, and the mine bobs to the surface where it can be detonated or sunk by gunfire. The sweep gear can be streamed to both sides of the ship simultaneously.

Minesweeping cutters are either mechanical or explosive. A mechanical cutter has no moving parts and cuts the mine mooring by means of two saw-toothed blades held in the form of a V; it will cut wire moorings up to 1/2-inch in diameter, but will not cut chain moorings. Explosive cutters are of two types. One utilizes a shaped charge to cut the mine mooring; with the other type an explosive charge propels a cutting chisel. Some explosive cutters are capable of severing chain moorings up to 1-1/8 inches in diameter.

Sweeping Magnetic Mines

As defense against magnetic mines, minesweepers are constructed of wood and stainless steel, aluminum, and other nonmagnetic metals which, along with an elaborate degaussing system, give them a low magnetic signature. A shallow draft also greatly reduces the danger to the minesweeper of moored or pressure mines.

To sweep magnetic mines the minesweeper streams a buoyant cable (tail), many yards astern or to the side of the vessel, through which a powerful direct current is pulsed at intervals. This sets up a large magnetic field around the cable and influences the mines.

Helicopters use the Mk 105 hydrofoil sled when sweeping magnetic mines. The sled, towed

through the water by a cable attached to the helicopter (figure 21-7), has a turbine and generator mounted on it to generate power for a magnetic tail trailed behind the sled much in the same manner as the minesweeping ship. The major disadvantage in using the Mk 105 sled is the requirement for a support ship or shore-based unit to assist in streaming and recovery.

Sweeping Acoustic Mines

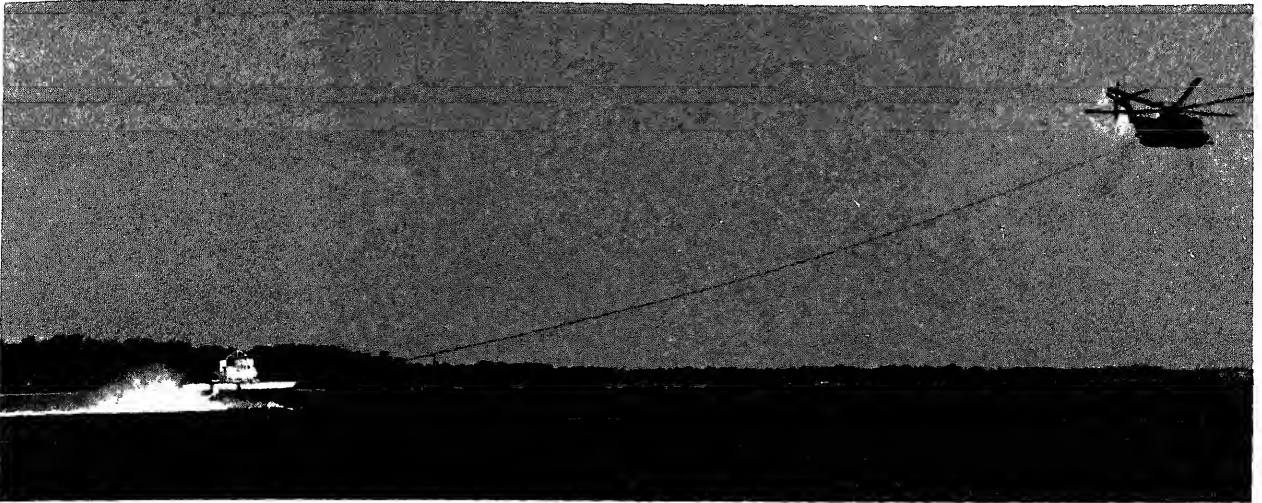
Sweeping acoustic mines is similar to magnetic minesweeping in that the effect of an approaching ship must be produced artificially. This is done by towing a noisemaker, of which there are numerous types, astern of the sweeper. In one commonly used type, a direct current motor actuates a striker which strikes a diaphragm to produce sound waves. Current to the motor may be pulsed or modulated to give the effect of an approaching ship. The approaching effect is vital because a sudden sharp noise, such as an explosion, will not fire the mines. It merely actuates a countermines bypass circuit designed to prevent a mine from being fired by the explosion of an adjacent mine or depth charge. The acoustic hammer is supported by a large float and is towed about 1500 feet astern. This is also true of helicopter-towed acoustic gear.

Sweeping Combination Mines

When sweeping for combination mines from helicopters (acoustic and magnetic) the Mk 105 magnetic sled and Mk 104 acoustic gear are combined to accomplish the task simultaneously.

Sweeping Pressure Mines

Unable to produce artificially the effect that would detonate pressure mines (that of a ship passing over), the Navy converted a merchant ship for that purpose. Operational for only a short time, it was decommissioned and scrapped. The search for a positive method to sweep pressure mines continues.



134.206

Figure 21-7.—The Mk 105 magnetic sled being towed by a helicopter.

EXPLOSIVE ORDNANCE DISPOSAL (EOD)

A very important part in mine countermeasures is played by members of EOD teams. A minefield may be located by various means; but unless the type of mine is known, sweeping will be a hit-or-miss affair not likely to produce the desired results. Therefore, EOD personnel will go down to look at the mines, and, if necessary, recover one for study. From information gained in this manner, proper sweeping techniques can be devised. Mines in shallow water, in congested harbors, close to

piers, or which for some other reason cannot be swept are disposed of by these personnel.

Each branch of the service is responsible for handling explosives on its own bases. However, any explosives found in U.S.-controlled waters are the responsibility of the Navy, and Navy EOD teams will be called upon to dispose of them. In addition, police forces frequently request their assistance in handling explosives for them.

EOD units are made up of teams consisting of one officer and two or more enlisted persons. All are volunteers, and all are graduates of the EOD school at Indian Head, Maryland.

CHAPTER 22

ANTISUBMARINE WARFARE

Until 1917 there was no adequate means of detecting a submerged submarine. The most frequent cause of submarine sinkings was ramming or gunfire. During World War I, however, three major developments established the foundation of antisubmarine warfare (ASW).

First was the development of the convoy system. The idea of grouping ships together had been used by the Spaniards three and a half centuries before to protect their gold shipments from Mexico, but not until Admiral William S. Sims, USN, applied his energies to the subject was it adopted as a defense against U-boats. Under destroyer escort, more than 2,000,000 American troops were convoyed to Europe during World War I without a single loss of life due to submarine action.

Second was the introduction of the directional hydrophone. During the closing months of World War I, the Allied Submarine Devices Investigation Committee, termed Asdic, was formed to obtain, from science and technology, more effective underwater detection equipment. The committee developed a reasonably accurate device for locating a submerged submarine. This device, a trainable hydrophone, was attached to the bottom of ASW ships and used to detect screw noises and other sounds that might come from a submarine.

Finally, the depth charge gave the destroyer a weapon capable of destroying a submarine under water, where it had previously been virtually invulnerable.

After a general postwar lull of about 10 years, work resumed in ASW. Although the Asdic committee disbanded after World War I, the British made improvements on the locating

device during the interval between then and World War II, and named it Asdic after the committee. American scientists further improved on the device, calling it sonar, an acronym for sound navigation and ranging. Sonar operating principles are described later in this chapter. By bouncing an audible signal off the hull of a submarine and measuring the time lapse between signal generation and return, sonar equipment measures the range and determines the bearing of the submarine. There are many problems inherent in the use of sound in the sea. Foremost of these is the dependency of sound velocity on water temperature, salinity, and pressure. Each of these parameters is so changeable in the open ocean that an accurate picture of sonar conditions is sometimes impossible to obtain. It is often possible for detection ranges to vary over several thousand yards due to environmental conditions.

Aircraft became an increasingly important part of ASW as land-based patrol squadrons acquired long-range flying boats in the 1930s.

In 1937, the destroyer Leary put to sea equipped with what German Admiral Doenitz in later years was to credit with winning the Battle of the Atlantic. This was the first seagoing radar, bulky and crude, but the forerunner of extremely sophisticated electronic devices to come.

The havoc wrought by Hitler's submarine fleet in the first 3 years of World War II is evident from chapter 21. To meet that threat, drastic countermeasures were required on the part of the allies. A primary need was for more escort ships. The 50 destroyers that Great Britain received from the United States in 1940

may well have been the thin margin of survival in those critical months. In addition, many of her own older destroyers were converted to ASW escorts. In order to combat U-boat wolfpacks, destroyers, frigates, and corvettes were organized into escort groups. The United States entry into the war provided the means for a coordinated effort on both sides of the Atlantic, but well into 1942 the Germans were still sinking ships faster than they could be built.

Aircraft soon proved their worth in the ASW effort. Convoys under air cover were rarely attacked by submarines. A part of the mid-Atlantic, however, was beyond the range of land-based patrol craft. To the Allies this area became known as the "Black Pit"; to the Germans, "U-boat Paradise." To overcome the handicap posed by the gap in air cover, the escort carrier was added to the convoy escort group, starting with *Bogue* (CVE 9) in 1943.

Other CVEs were then deployed with DEs to form hunter-killer units that were stationed near convoy routes across the deadly mid-Atlantic gap. Whenever U-boats began converging on a convoy, the carrier and her brood would proceed to intercept them, picking off as many single submarines as they could along the way. What made this procedure possible was tremendously efficient teamwork on both sides of the Atlantic. In Washington, the Tenth Fleet (a shore-based staff, not a group of ships) provided extremely accurate intelligence on the movement of the German craft. Long-range high-frequency direction finder (HF/DF) stations ringed the Atlantic. With these, it was possible to fix the position of any U-boat transmitting lengthy messages which were required daily by the German High Command in Berlin. Aircraft from the carriers would be vectored to look for the subs and, upon contact, lead surface escorts to the targets for coordinated attacks. This technique was employed in May 1944 when the escort carrier *Guadalcanal* and ships of her screen captured U-505 with all of her codes and ciphering.

German countermeasures included the snorkel, which came too late; radar detectors, which often gave away submarines' positions by their own electronic emissions; various attempts

to deflect radar echoes, heavy AA armaments, and acoustical decoys to fool sonar operators.

The Pacific ASW campaign was not nearly so dramatic, primarily because the Japanese failed to employ their submarines effectively. The most spectacular performance was that of the *England* (DE 635), which single-handedly destroyed five submarines of a Japanese picket line and assisted in the sixth kill within a span of 12 days.

In postwar years ASW weaponry improved with respect to both detection range and killing power. The submarine's position was saved by the advent of the snorkel submarine. With the launching of the nuclear-powered *Nautilus* in 1955, the relative balance that existed between the capabilities of submarines and ASW units changed radically. No longer did the submarine have to come to the surface or even near it to recharge her batteries and air supply. Nuclear power permitted complete independence from the sea surface and with it virtual freedom from detection by ships or aircraft. With the marriage of the *Albacore* hull (of teardrop configuration and with a minimum of external appendages and superstructure) and nuclear power, the submarine could outrun and outmaneuver virtually all of her surface opponents.

When one nation perfects a new or advanced weapon, it only remains a matter of time before other, possibly hostile, nations perfect their own version of that weapon. Therefore, with the advent of the nuclear submarine, it also became necessary to devise a defense against that type of submarine in the event of its use by an enemy against the United States. Weapons systems such as LAMPS and ASROC were developed to extend the attack range of destroyer-type ships, while introduction of the variable-depth sonar (VDS), which can be lowered over the stern to a depth of several hundred feet, improved detection capabilities previously limited by the fixed, hull-mounted sonar.

To combat the fast-running, highly maneuverable nuclear-powered submarine, the SSN itself, with its highly improved sensing devices and its payload consisting of torpedoes plus long-range subsurface to surface and subsurface to subsurface missiles, and operating

in its own element, was adapted to an ASW role. Surface ASW equipment was greatly improved with the advent of more modern detection equipment such as LAMPS, helicopters, and variable depth sonars. ASROC and improved torpedoes increase kill probability. Newer and more capable aircraft have helped immensely.

The basic mission of antisubmarine warfare (ASW) is to deny the enemy the effective use of his submarines. The U.S. Navy has accomplished this mission twice within the last century. But we must go beyond what we have learned in the past, to develop new techniques to match the expanding role of the submarine. It is no longer enough to prevent submarine torpedo attacks on our shipping and naval vessels. In addition to the torpedo, submarines now have a long-range nuclear missile capability; and this, in turn, generates a new requirement—the need to find and keep under surveillance all enemy submarines before they can reach a point within missile-launching range of our coasts.

Antisubmarine warfare can be considered as having protective and offensive phases. Protective tactics include the establishment of operating methods which ensure safe arrival of shipping at destination, and protection of ships and shore activities against submarine attack. Operations employed to accomplish the offensive tasks include air strike operations against submarine bases.

BASIC ELEMENTS OF ASW FORCES

Surface units, aircraft and submarines are the basic elements of our ASW forces. These forces are capable of operating independently or in conjunction with each other, as the situation may warrant.

SURFACE UNITS

The surface ship has a greater variety of both detection equipment and weapons than any other ASW unit. A prime advantage of the surface ship is its ability to conduct all-weather operations. Impaired visibility, darkness, storms, or rough seas do not prevent the surface unit from detecting a submarine or launching an



134.183

Figure 22-1.—LAMPS helicopter landing aboard the guided-missile cruiser Belknap.

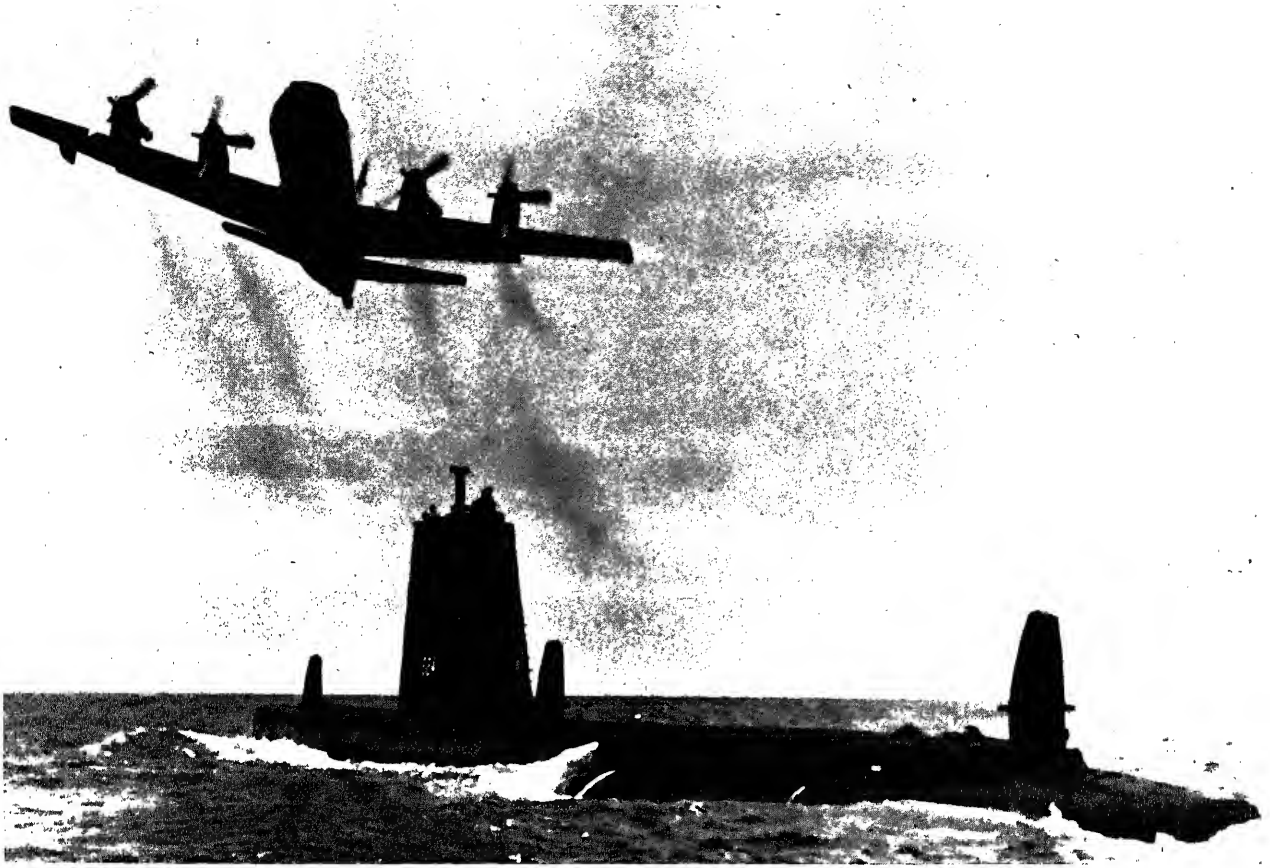
attack. In addition, a ship has the capability of remaining on station for a comparatively long time.

Our most effective ASW surface ships today are frigates, destroyers, and cruisers equipped with manned SH-2F helicopters (figure 22-1), designated as the Light Airborne Multipurpose System (LAMPS). In addition, these ships are utilizing new and improved radar, sonar, electronic countermeasures, and communication systems to enhance their detection capabilities.

Aircraft carriers, with ASW aircraft embarked, are considered as another major surface unit. They allow midocean areas beyond the effective range of land-based patrol aircraft to be monitored.

ASW AIRCRAFT

Aircraft have the ability to investigate distant contacts rapidly and are completely invulnerable to submerged submarines. With the advantages of speed, relatively long range, and weapons capability, aircraft may fulfill the antisubmarine mission independently or in



134.95.6

Figure 22-2.—Advanced detection systems, extended loiter ability, and a large ordnance capability make the Orion a deadly ASW weapon system.

coordination with other types of antisubmarine units.

Aircraft resources for antisubmarine warfare are basically of three types: long-range patrol aircraft, medium-range carrier-based aircraft, and helicopters.

Patrol Aircraft

The P-3 Orion (figure 22-2) is the Navy's principal patrol plane. To carry out its primary mission of locating and attacking submarines, it has a variety of sensors, including radar, sonobuoys, magnetic anomaly detector (MAD), and electromagnetic intercept (ESM) equipment.

Orion's armament includes torpedoes, rockets, depth bombs, air-to-surface missiles, and conventional bombs. It also can be used for aerial mining.

Carrier-Based Aircraft

The S-3A Viking (figure 22-3) is a carrier-based jet-powered ASW search and attack aircraft. Detection equipment includes active and passive sonobuoys, MAD gear, and radar. Secondary functions include all-weather search and rescue, plane guard duties, gunfire observation, and personnel transfer. Weapons include torpedoes and depth bombs.

ASW SUBMARINES

The submarine itself is perhaps the most effective antisubmarine vehicle; it operates in the same medium and shares the target's advantages of concealment and passive detection. (Passive sonar depends entirely on the target's noise as the sound source rather than the returned echoes of a transmitted signal.) The submarine can be employed in protecting the capital ships of a carrier task force, in detecting enemy submarines while working with a hunter-killer group, and in supplementing and protecting radar picket destroyers. Submarines can precede carrier strike forces into enemy waters to function as ASW screens and as minelayers. Immediately before a strike, guided-missile submarines could be utilized to destroy enemy submarine installations (as well as other strategic targets) before enemy submarines have a chance to put to sea.

AIRBORNE ELECTRONIC DEVICES

The magnetic anomaly detection (MAD) device is used mainly for classification purposes.

When used against submarines at shallow depths, it produces a conical shaped sweep path which can, depending on height of the aircraft and other variables, detect a submarine by variations in the Earth's magnetic lines of force. Because of its limited range, MAD is not generally classed as a device for open area searches, but it is suitable for use in small areas geographically or tactically defined or restricted. The MAD normally is utilized as the final localization of a submarine prior to attack.

Expendable radio sonobuoys, used with measured success against submarines of the last war, are very useful against snorkeling submarines at close ranges, in tactical situations where high speeds are required of a submarine, or against submarines rendered noisy by attack or operational casualty. The sonobuoys are buoyant tubes, each containing a hydrophone and radio transmitter. They are dropped from an aircraft and the sounds that the hydrophones pick up are broadcast to surface craft or aircraft. Each sonobuoy is on a slightly different frequency. Active buoys that emit a sound signal and listen for the return echo also are used.

Since helicopters are capable of hovering, as in figure 22-4, in one spot, a different piece of



Figure 22-3.—AN S-3A VIKING Antisubmarine aircraft catches the wire during a recovery aboard the attack aircraft carrier USS FORRESTAL, CV/59.

134.182



3.115

Figure 22-4.—The helicopter lowers detection gear into the water while hovering over a suspected contact area.

equipment is employed. This aircraft, by means of a long cable, lowers a cylindrical transducer into the water while hovering over the suspected contact area. With this gear the helicopter can listen or echo-range. If a dip at one point produces negative results, the sonar is lifted clean and the aircraft moves to another point.

Other methods of detection include:

1. Infrared detection.
2. Heat detection as applied to thermal wakes.
3. Pulsed visible light techniques (high-power sources with extremely short duration flashes, aimed at detection of

submerged submarines at periscope or snorkel depth).

4. Exhaust trail indicator.
5. Explosive echo ranging using sonobuoy detectors.

In all types of airborne electronic ASW devices, proper training of both operating and maintenance personnel is paramount to successful application of the equipment. Special techniques may be involved, in such matters as spotting snorkel targets on radarscopes and proper and accurate sound identification as required for effective use of sonobuoys and proposed sonic devices.

SOUND NAVIGATION AND RANGING

The principal method of submarine detection is sonar (Sound Navigation And Ranging). This is the name applied to the electronic device that can either detect the sounds originating under water (passive sonar) or transmit a sound wave through the depths that, upon striking an object, will reflect (active sonar). Submarines use passive sonar to enable them to detect objects making noise without transmitting a telltale ping themselves.

To understand how sonar works, you must first understand sound. Sound is the physical energy which causes the sensation of hearing. It travels in the form of waves away from the point of origin, just as ripples travel out in all directions when a pebble is tossed into a pond. Echoes are created when the sound waves strike an object of varying density in the surrounding seawater. The waves will not travel through these objects, and are reflected back to the source.

The substance through which sound travels is called a medium. All types of matter are sound mediums of varying efficiency. The denser the medium, the more rapidly sound travels through it. Therefore, steel is a better medium than water, and water is a better medium than air.

Let us take a look at what happens to a sonar impulse after it leaves the transducer (the transmitting device in the water). The transducer introduces the sound wave into the water by converting the equipment's electrical energy into sound vibrations. The impulse travels at a rate of between 4700 and 5300 feet per second, depending on the temperature, salinity, and pressure of the water. This is four or five times faster than the speed of sound in air, but the hazards of travel take their toll on this speed and signal strength. Some of the sound is absorbed by currents, bubbles, or wakes, and it is further weakened by scattering as it passes through water containing foreign matter, i.e., seaweed, silt, animal life, or air bubbles.

Also, like a searchlight beam, the sound wave spreads out as it travels farther and farther

away from the transducer and thus becomes weaker and weaker.

Once the wave does strike an object such as a submarine, that portion of the impulse which is at a right angle to the object is reflected back toward the sonar receiver. Again it is acted upon by absorption, scattering and spreading, but a signal will be received indicating a possible target, provided it is not drowned out by reverberations, self-noise and a high surrounding noise level. These are the multiple reflections or echoes which can come from many sources.

Sound waves bouncing off small objects such as fish or air bubbles produce small echoes. Sound reflected from the sea surface and bottom also echo, and the sea mass itself causes reverberations. These reverberations appear on video display and come in over the audio receiver in the form of a roar. Reverberations from nearby points may be so loud that they interfere with, or completely mask, the returning echo from the target.

SHIPBOARD ASW ORGANIZATION

Sonar control and underwater battery (UB) plot are the two major shipboard ASW stations. Other stations are bridge, combat information center (CIC), and ASW weapons batteries.

Sonar control is the ASW station that maintains a continuous underwater search for submarines. Underwater battery plot is the station assigned the task of solving the fire control aspects of an ASW attack. Sonar control and UB plot usually are housed in separate compartments, although this is not always the case.

From the bridge, the officer of the deck conns the ship, keeping other control stations informed of the ship's maneuvers.

The combat information center is the key station for coordinating search-attack operations within the ship and between ships. Personnel in CIC plot, display, evaluate, and disseminate all air, surface, and subsurface contacting information; and recommend search plans to the commanding officer. In many ships the

commanding officer allows the ASW officer in UB plot advisory control in executing the final phase of an attack and the launching of the weapon(s); and allows CIC advisory a favorable position for reattack. The CIC may control ASW aircraft in addition to searching for any surfaced submarines.

In modern ASW ships, the captain often directs the attack from CIC. Should he choose

to remain on the bridge, however, repeaters duplicate and display information from UB plot and CIC, and phone talkers relay amplifying information so the captain (in conjunction with his threat evaluator/weapons assignment officer in CIC) can evaluate critical elements of the attack—the target's course, speed, depth, and possible evasive maneuvers—before authorizing delivery of the necessary ASW weapons.

CHAPTER 23

AMPHIBIOUS WARFARE

Amphibious warfare has special significance for every officer in the Navy, for it integrates virtually all types of ships, aircraft, weapons, and landing forces in a concerted military effort against a hostile shore. The inherent naval character of the amphibious attack is reflected in the principles which govern the organization of the forces participating and the conduct of the operation. The ability to conduct such operations effectively is a measure of a nation's competence in applying the elements of seapower and airpower in a coordinated effort.

The usefulness of the amphibious operation stems from mobility and flexibility; i.e., the ability to concentrate balanced forces and to strike with great strength at selected points in the hostile defense system. An amphibious operation exploits the element of surprise and capitalizes upon enemy weaknesses through application of the required type and degree of force at the most advantageous locations at the most opportune times. The mere threat imposed by the existence of powerful amphibious forces may induce the enemy to disperse his forces, and this, in turn, may result in his making expensive and wasteful efforts in attempting to defend his coastline.

Amphibious assaults must be conducted in the face of certain additional and distinguishing difficulties. Natural forces—unfavorable weather, seas, surf, and other features of the hydrography—represent hazards not normally encountered in land warfare. Logistics problems include loading thousands of troops and large quantities of material into ships, moving them to the objective area, and then landing them in exactly the proper sequence on open beaches or landing zones which may be under enemy fire.

All such problems require extraordinary attention to detailed planning.

The closest cooperation and most detailed coordination among all participating forces in an amphibious operation are essential to success. The forces must be trained together, and there must be clear understanding of mutual obligations and of the special capabilities and problems of each component.

Amphibious striking forces normally include Navy-Marine Corps forces, but may include personnel from every service of the Armed Forces. These forces are integrated into a task organization to form a single cohesive amphibious striking force capable of executing its mission with utmost efficiency. The keynote of successful amphibious operations is the complete coordination and unity of effort among all the participating elements of land, sea, and air forces. Successes achieved in the conduct of amphibious operations during World War II, in the Korean conflict, and in Vietnam are direct results of the close relationships that developed among our Armed Forces.

Amphibious operations are conducted to establish a landing force on a hostile shore to (1) prosecute further combat operations, (2) obtain a site for an advanced naval or air base, and (3) deny the use of an area or facilities to the enemy.

Examples of operations conducted to prosecute further combat operations are those at Normandy and Salerno which paved the way for the employment of large land armies on the mainland of France and Italy, respectively.

Seizure of land for advanced-base purposes is best illustrated by the island-hopping campaigns

in the Pacific where, as the United States brought the war closer to Japan's doorstep, advanced bases were established on some of the captured islands. Advanced bases are primarily fleet anchorages from which task forces of ships can be supported. The use of advanced bases shortens the lines of supply and communications and thereby decreases their vulnerability.

Denial of an area to an enemy is illustrated by the Aleutian campaign in the Pacific. The enemy was driven off the islands of Kiska and Attu, and then these islands were occupied by our forces to prevent their use by the enemy. For the remainder of the war, reconnaissance and raiding operations were conducted from the Aleutians by U.S. ships and aircraft.

HISTORICAL BACKGROUND

World War II produced the greatest series of landing operations in history. Their magnitude, both in number and size, and the diversity of the landings in the Pacific, in Europe, in the Mediterranean, and in North Africa tend to create the impression that the amphibious operation is a new type of military enterprise. Actually, military history contains many instances of landing operations conducted in all parts of the world since the early times when man first crossed the sea to wage war. One of the first recorded landing operations dates back nearly 3000 years. This was the half-legendary attack of the Greeks upon the city of Troy in Asia Minor near the Dardanelles. Homer's *Iliad* relates that the Greeks crossed the Aegean Sea, stormed the beaches near Troy, and after 10 years of war, destroyed that city.

LANDINGS IN WORLD WAR I

World War I gave us our first classic example of modern large-scale landings. The combined operation conducted by the British during the Dardanelles campaign in 1915 constituted a major effort. In the assault landings on the Gallipoli Peninsula, on beaches that were unopposed or lightly defended, troops landed with few or no losses. Extremely heavy losses were suffered, however, at the strongly defended

beaches even though the troops were successfully put ashore. Land operations for the seizure of the Gallipoli Peninsula were unsuccessful. In fact, a secure beachhead never was established. Although cooperation between troop and naval components was excellent, the logistic buildup on the beaches never was adequate, and communications were primitive. The landing forces were finally evacuated in January 1916 after a campaign lasting 8 months, and the impracticability of attempting landings against opposition apparently was conclusively demonstrated. But Gallipoli was not conclusive.

DEVELOPMENT BETWEEN WORLD WARS

During the 25 years between Gallipoli and Guadalcanal, the United States developed the doctrine, organization, tactics, and techniques necessary for success in amphibious warfare. The Marine Corps was responsible for advancing this type of warfare during that period. In 1921, the Commandant of the Marine Corps, Major General John A. LeJeune, USMC, directed the Marine Corps Schools to launch a full-scale attack on the problems of amphibious warfare. The Marine Corps and the Navy, in addition to actually conducting landing operations, established a workable doctrine for both troop and naval components of an amphibious attack force. Organizations, weapons, and equipment were tested in actual use, and recommendations were made for further development. The doctrine was also supplemented with new techniques evolved in training and directed mainly at improving coordination of participating air, ground, and surface elements.

AMPHIBIOUS OPERATIONS IN WORLD WAR II

Every major offensive campaign the United States launched during World War II was initiated by an amphibious assault.

Pacific Theater

The first American amphibious landings of World War II were made in the Guadalcanal campaign begun in August 1942. In these

operations, executed by the 1st Marine Division, Fleet Marine Force (at that time, the only amphibious troops in readiness for combat operations), amphibious techniques and doctrine which had been developed were put to, and successfully passed, the final test—proof under fire. The remainder of World War II in the Pacific consisted mainly of offensive land campaigns started from the sea by amphibious assaults of increasing magnitude. In 1945 came the amphibious capture of Luzon, Iwo Jima, and Okinawa. Before the Japanese surrender in September 1945, the United States was preparing for the final assault—an amphibious assault—on the Japanese mainland. The pressure exerted on Japan from the naval and air bases gained by amphibious assaults was of primary significance to the successful prosecution of the war in the Pacific theater, which was predominantly naval in character.

European Theater

United States entry into the conflict in the European theater was initiated by amphibious landings in French North Africa in 1942. The purpose of this invasion was to secure African bases from which to carry the war to Sicily, freeing Great Britain's lifeline to the Middle and Far East, and opening the way for invasion of Italy and southern France. July of 1943 found an armada of over 3000 ships and craft with 160,000 men landing on the beaches of Sicily, an operation eventually destined to force Italy out of the war.

The landings keynoting the invasion of Western Europe commenced on 6 June 1944 over the beaches of Normandy, France (figure 23-1). The magnitude of a major amphibious operation is clearly illustrated by the Normandy landings: in the first 28 days, some one million men, 183,000 vehicles, and 650,000 tons of supplies were landed across the beaches and in artificial harbors by a force of about 3000 vessels.

AMPHIBIOUS WARFARE SHIPS

Amphibious ships, by virtue of their specialized characteristics such as heavy lift

booms, ability to beach, or capacity for carrying large and heavy landing craft, are uniquely capable of performing a variety of tasks. Ships that constitute the amphibious forces of today are discussed and illustrated in chapter 16.

PHASES OF AN AMPHIBIOUS OPERATION

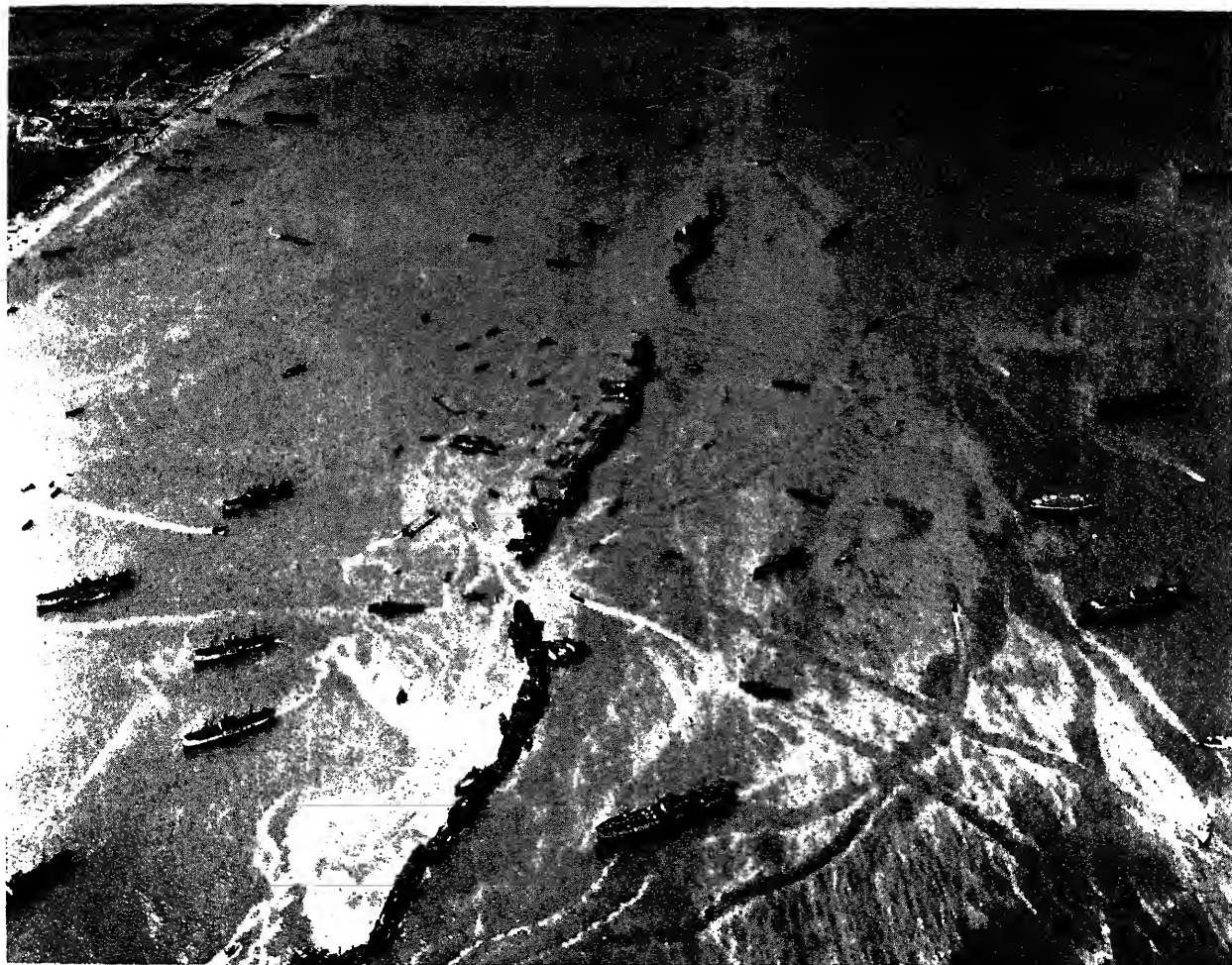
The planning and prosecution of an amphibious operation are explained below.

PLANNING

An inexperienced observer of an amphibious landing cannot appreciate the extensive planning that goes into one of these operations. Such planning reflects the collected intelligence data on enemy forces and territory concerned and is designed to accomplish the following tasks:

1. Embarkation by combat loading methods.
2. Movement to the amphibious objective area, including defense against air, submarine, and surface attack.
3. Pre-assault operations (preparation of the objective area) include gaining and maintaining local air superiority; destruction of enemy forces and installations by naval aircraft, shipboard guns, and missiles; clearance of mines and underwater obstacles; reconnaissance of beaches by underwater demolition groups; determination of exits inland; and isolation of the objective area.
4. The ship-to-shore movement, by means of which troops and their weapons, vehicles, and supplies are moved ashore, by helicopters and/or landing craft.
5. Clearance of beach obstacles and movement inland with tanks, artillery, and light and heavy vehicles.
6. Naval gunfire, missile, and air bombardment in support of the assault and the movement inland.
7. Landing of supplies and logistic support buildup.

There are other tasks, but these will suffice to illustrate the many requirements that need to be considered and resolved. An amphibious



134.167

Figure 23-1.—In order to form a makeshift breakwater for the Normandy beachhead, American Liberty ships were deliberately scuttled. The “Mulberry,” as it was called, provided a sheltered anchorage and greatly speeded up the flow of supplies to the beach.

attack can succeed only if it is carefully planned and organized. Timing is extremely important. Planning, the responsibility of the commander and his staff, demands a complete knowledge of the various combat arms employed and the numerous problems unique to an amphibious operation.

Collection of Information

Current and adequate intelligence is a prerequisite to sound amphibious planning.

Therefore, prompt initiation of the collection of essential information is necessary for the valid and timely development of required intelligence.

Collection of the extensive and detailed information needed for planning an amphibious operation is complicated by some or all of the following factors:

1. Distance to the amphibious objective area (AOA) is often great.
2. The amphibious task force is not in contact with the enemy.

3. Many of the available information-collecting agencies are not part of the amphibious task force.

4. The necessity for deception to avoid revealing the time and place of landing may require dispersion of effort by collecting agencies.

5. A relatively long period of time may elapse between the start of planning and the execution of the landings. During this time the characteristics of the objective area and the enemy situation may undergo many changes.

Alternate Plans

Alternate plans, considering the possibilities of loss, delay, or changes in time and place of landing, are necessary. As an additional means of maintaining flexibility, the decision as to which specific plan will be employed may be deferred until a short time before the selected hour of landing.

Planning Procedures

The basic procedures used in planning an amphibious operation are the same as those employed for all types of naval operations. Following receipt from higher authority of the initiating directive, the amphibious task force commander issues a planning directive to ensure that interdependent plans will be coordinated, that planning will be completed in the time allowed, and that important aspects will not be overlooked. The planning directive specifies the principal plans to be prepared, and it sets a deadline for the completion of each major step in the planning process.

EMBARKATION

In a major amphibious operation, troops are assembled at various ports with their equipment and vehicles. In accordance with extremely detailed loading plans, formulated during the planning phase, designated ships arrive in these ports at specified times, ready to embark the landing forces.

Each item of equipment is loaded aboard in reverse order of the priority in which it is desired on the hostile beach. Individual loading plans for each ship are prepared by the combat cargo officer of the ship and the commander of the landing force unit to be embarked in that ship. The loading plan is reviewed and approved by the commanding officer of the ship from the viewpoint of his ability to carry it out, and in terms of the safety of his ship.

As soon as the ship is moored, it is in all respects ready for loading—all landing craft have been offloaded, appropriate cargo handling gear is placed in readiness, and all cargo booms are rigged out as necessary to handle the material to be stowed in each hold. The advance party of troops boards the ship at the embarkation port and proceeds immediately with the details of loading. When all cargo is aboard, the remainder of troops embark and the ship leaves her berth and proceeds to an anchorage to await the forming of the convoy. In crowded ports with few facilities, loading may be accomplished with the ship at anchor. The procedure is similar to that already outlined except that all cargo and equipment must be moved out to the ship by boats, barges, or other lighterage.

REHEARSALS

The schedule for an amphibious operation usually allows for one or more rehearsals. They are carried out under conditions approximating those of the anticipated operation, and rehearsal participants should include all units that will take part in the actual operation. The purposes of rehearsals are to test the familiarity of all echelons with plans, adequacy of plans, timing of detailed operations, combat readiness of participating forces, and effectiveness of communications. If practicable, rehearsals include naval gunfire and air support with live ammunition. Unloading is carried out as determined during planning in sufficient degree to test effectively the tactical and logistic plans, the operation of the ship-to-shore movement control organization, and functioning of the shore party, including naval components. Each rehearsal is followed by critiques at all levels of command in order to evaluate the exercise, to

emphasize lessons learned, and to correct mistakes.

MOVEMENT TO THE OBJECTIVE AREA

Movement of the amphibious task force to the objective area includes departure of ships from ports of embarkation; the passage at sea; and the approach to, and arrival in, assigned positions in the objective area. Movement may be via rehearsal, staging, and rendezvous areas. The amphibious task force is organized into movement groups, which proceed along prescribed routes in accordance with the movement plan. Usually ships are assigned into fast or slow movement groups, depending on their sustained sea speed. En route to the objective area, the amphibious ships are protected from air, surface, and subsurface attack by forces which may not be a part of the amphibious task force. Carrier striking forces provide air cover and long-range reconnaissance en route to the objective area. In addition, mine warfare ships and other ships suitable for screening but with other primary functions may be employed for screening duties during movement to the objective area. The safety of the amphibious ships with their embarked troops, equipment, and supplies is of paramount importance. Landing forces must arrive in the objective area without critical reduction in their combat potential.

PRE-ASSAULT OPERATIONS

Pre-assault operations are conducted in the objective area by subordinate elements of the amphibious task force which normally are organized into an advance force. The advance force is a temporary organization and usually is dissolved when the main body of the amphibious task force arrives in the AOA. Some of the tasks accomplished by the advance force are:

1. Destruction of defenses ashore. Beach and landing zone defenses, gun emplacements, observation posts, and other installations which

could be used to oppose the landing are destroyed by the advance force. Naval gunfire bombardment and air strikes are used for this purpose.

2. Preparation of sea areas. Minesweeping, defensive minelaying, hydrographic surveying, and net laying are accomplished as necessary.

3. Preparation of beaches and offshore approaches. Underwater demolition teams prepare the beaches and approaches for the passage of landing craft, landing ships, or amphibian vehicles by destroying all obstacles, natural or manmade, including mines, in the offshore area between the 3-fathom line and the high water mark. Obstacles which cannot be destroyed or removed are marked by buoys. Beach reconnaissance information, including detailed data on beach gradients, obstacles, tide and surf, depths of water, routes of exit from the beaches, soil trafficability, defenses and suitability of selected beaches, is transmitted by the advance force to the amphibious task force and landing force commanders.

SUPPORTING OPERATIONS

In addition to the advance force operations normally conducted within the AOA, other supporting operations are carried out prior to and concurrent with the amphibious assault. Examples of supporting operations are diversionary landings for purposes of deception, interdiction of enemy force movements to isolate the AOA, and remote air operations designed to provide freedom from enemy interference. Supporting operations are conducted by other fleet and theater forces but are not considered as part of the amphibious operation. However, since they contribute to the preparation for the amphibious assault, they must be responsive to the requirements of the amphibious striking force.

The most important contribution to the success of an amphibious operation is the attainment and maintenance of local air superiority in the AOA. Great reliance is placed upon air support from the fast carrier striking force to achieve air superiority and to prevent

the movement of the enemy in force into, and within, the objective area. There is a continuing requirement for defense against enemy air, surface, and subsurface attack.

THE ASSAULT

The doctrine for a modern amphibious assault calls for completely integrated Marine air-ground landing forces that are organized, trained, and equipped to exploit the speed and flexibility of the helicopter. The helicopter is designed to work equally well under all conditions of warfare, large or small, nuclear or conventional. With the development of the troop helicopter and the specialized amphibious shipping in which large numbers of these aircraft may be carried, the amphibious landing is no longer restricted to excellent landing beaches as was the case in World War II and the Korean conflict.

By transporting the assault elements by helicopter, we enjoy greater tactical flexibility. Beach defenses and other strong points can be overflowed and bypassed. Key terrain features, widely dispersed, can be seized and occupied rapidly. No longer is it necessary to fight over long stretches of ground to reach these

objectives. Also, inland objectives can be approached from any direction. Important tactical objectives, such as airfields, may be quickly taken by helicopter-borne combat teams.

The assault phase begins when the amphibious striking force arrives in the AOA. The tactical unity of the assault forces is maintained insofar as practicable during the ship-to-shore movement. The battalion landing team, consisting of an infantry battalion or similar unit reinforced by such supporting units as may be attached for the assault, is the basic unit of the landing force. Waterborne and helicopter-borne landing teams are organized into "waves" containing the personnel and equipment to be landed simultaneously in a given area.

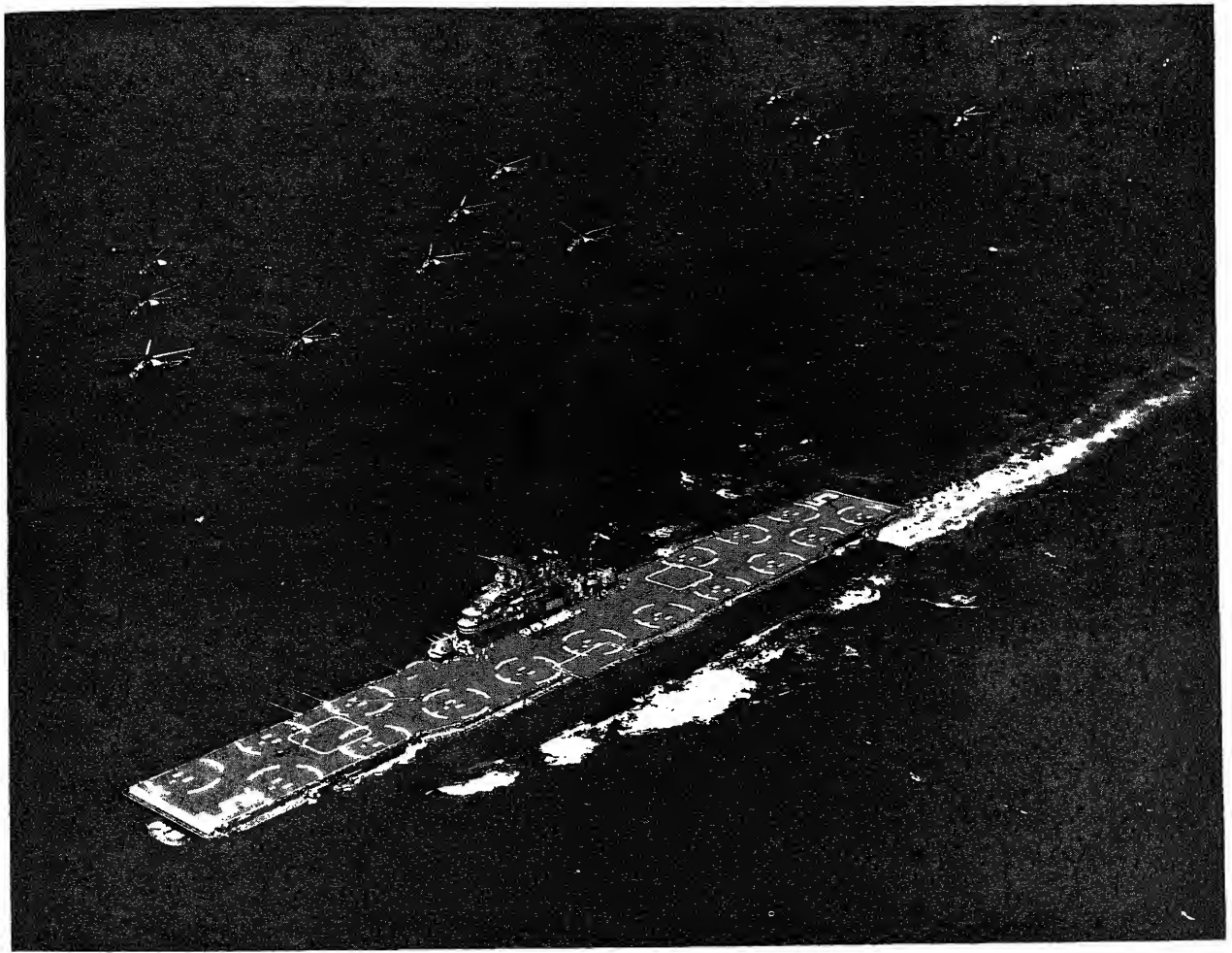
Ship-to-Shore Movement

Shortly before L-hour and/or H-hour, which is the start of the amphibious assault or the time of the landing of the first wave of helicopters or landing craft, the signal "Land the Landing Force" is executed. Immediately, all amphibious ships offload their boats, which then circle in prearranged areas (as in figure 23-2) until called



Figure 23-2.—Circling near the parent ship, landing craft await the signal to go alongside and receive their cargoes prior to beginning the assault.

134.168



3.86-5

Figure 23-3.—USS PRINCETON (LPH-5), mother ship to about 40 helicopters, here dispatches them and their cargoes of troops to the objective area.

alongside to receive their cargoes of troops and equipment. (Ships provided with a well deck launch their craft fully loaded.) Heli-teams embark in assigned helicopters. Just prior to L-hour, the helicopters are dispatched to flight rendezvous points (as in figure 23-3) where they form with other flights into waves and proceed to their assigned objectives. Fully loaded landing craft are directed to proceed to the line of departure (LOD), forming into waves en route. All of these operations by landing craft and helicopters are closely controlled and synchronized. Normally, the helicopter-borne

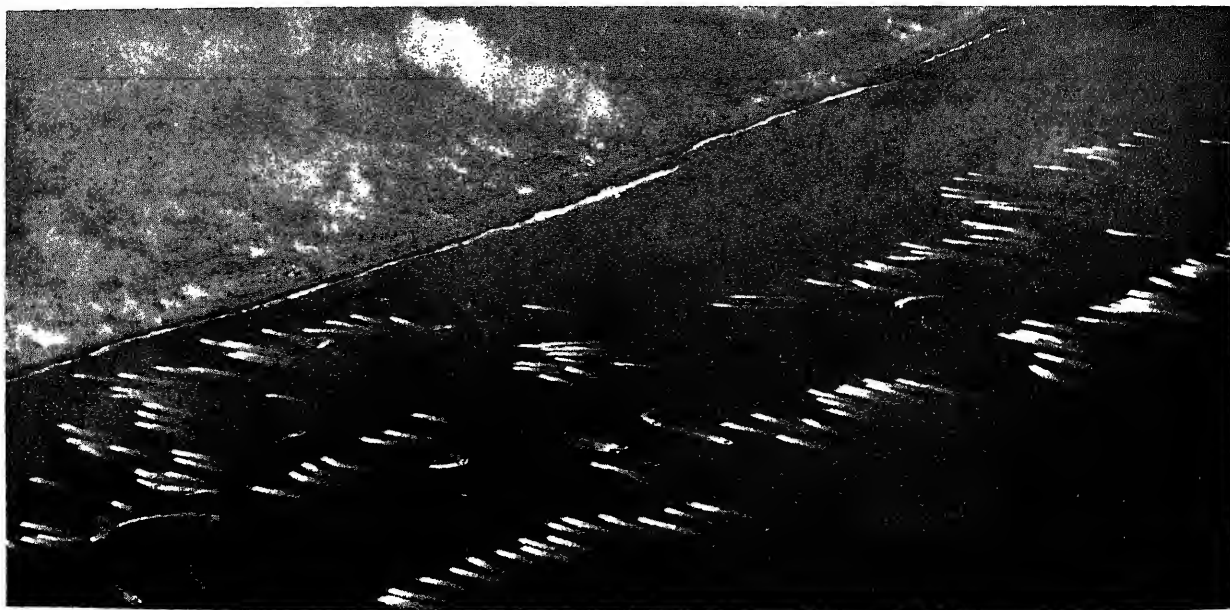
waves (figure 23-4) capture their initial objectives prior to the waterborne assault, thereby diverting some defenders from the coastline.

As the waves form at designated points and commence their final approach, shore bombardment measures are intensified. Major emphasis is placed on the destruction and neutralization of hostile defenses most dangerous to the successful landing of troops at the designated beaches or landing zones. Strike aircraft intensify attacks against defensive installations near the beaches, helicopter



134.106

Figure 23-4.—Marines debark from their helicopters to rout out entrenched enemy forces or to divert defenders from the assault landing area.



134.107

Figure 23-5.—Shore bombardment intensifies as troop-laden assault craft approach the beach.

approach lanes, and landing zones. These attacks are continued until immediately prior to the landing of the leading waves (figure 23-5) at which time the attacks are shifted away from the landing beaches and landing zones to other selected targets in order to provide continuing support to the assault elements of the landing force. Naval gunfire is continued on the immediate beach and landing zone defenses until the safety of the leading waves requires lifting of fire. Then, close support fire is concentrated on positions farther inland, on the flanks of the landing beaches, or on perimeters of the landing zones.

Overall coordination of air and naval gunfire support is the responsibility of the amphibious task force commander and is preplanned to the extent possible. Delivery of unscheduled fire

support on targets of opportunity and unexpected changes in air operations necessitate continuous and close coordination in order to provide maximum effectiveness with a requisite degree of safety. The principles and procedures of fire support coordination are not changed by the introduction of nuclear weapons. However, the importance and extent of coordination are increased because of the magnitude of nuclear weapons effects.

Establishing the Beachhead

At H-hour the first waves touch down, and the troops disembark (figure 23-6), disperse, and start toward their initial objectives. Operations are so directed as to rapidly establish a secure beachhead of sufficient extent to ensure the



Figure 23-6.—The first wave of infantrymen comes ashore and starts toward its initial objectives.

continuous landing of troops and material and to provide the terrain features and maneuvering space required for initiating further planned objectives. During operations to capture the beachhead, intermediate objectives are designated to enable troop commanders to coordinate their efforts. An early juncture between the waterborne forces and troops landed by helicopter, parachute, or transport aircraft is desirable. Reserves of the assault units are landed as required in order to maintain the momentum of the attack.

LOGISTICS DURING THE ATTACK

During the assault phase, the logistic support system of the landing force is progressively developed, starting from a ship-based status and proceeding through a period of decentralized support conducted through several beaches and landing zones and eventually consolidated into a single centrally controlled effort. Since the supplies and equipment carried by individuals and organizations in the initial landing are limited, a flexible, yet positive, system is established to provide timely replenishment of supplies and to build up stocks ashore to sustain the assault and diminish the dependence of the landing force on supplies which are still afloat. During the initial stage of the assault, logistic support is provided from within beach support areas and landing zones. As the operation progresses, the functions carried out from these areas are consolidated, and logistic support areas are established.

When logistic support areas are adequate and the assault has progressed to a point where there is reasonable security for logistic installations ashore, the landing force commander may recommend general unloading. After the amphibious task force commander gives the order to commence general unloading, all ships in the amphibious task force discharge their remaining cargo as rapidly as beach unloading conditions permit. The control organization for the ship-to-shore movement ceases to operate except for regulation of traffic, but remains substantially in a standby status, ready to resume selective unloading if required.

When, in the opinion of the landing force commander, the landing force is firmly established ashore and ready to assume full responsibility for subsequent operations, and when mutually agreed upon with the amphibious task force commander, control of land operations is shifted ashore to the landing force commander. The amphibious operation is then terminated with the amphibious task force remaining in support until competent authority dissolves the amphibious task force and directs its forces to report to designated superiors or directs reembarkation of the landing force.

UNDERWATER DEMOLITION TEAMS AND NAVY SEAL TEAMS

Within the Naval Surface Forces are the naval special warfare units: underwater demolition teams (UDTs), and sea-air-land (SEAL) teams.

UDT OPERATIONS

During the invasion of the Tarawa Atoll in November 1943, waves of landing craft carrying Marine troops grounded on a submerged coral reef. Hydrographic information was inadequate as to tidal depths in the sea; as it turned out, there was no water over the reef at low tide, precluding passage of landing craft. During the assault, many of the troops were forced to wade through long stretches of hip-deep water under heavy fire. Losses were high even before the landing force made it ashore.

One of the bitter lessons learned at Tarawa was that correct hydrographic intelligence is essential for any amphibious assault. Staff planners of all services now recognize that the success of future amphibious assaults will be jeopardized if offshore obstacles are not discovered and either taken into consideration or removed.

Navy planners had already developed a concept for underwater demolition teams (first named combat demolition units) who first formed up in the summer of 1943. These men, however, recruited from the Seabees, were being

trained for the primary purpose of supplementing Army beach sappers during the planned invasion of Normandy, it being fairly obvious that the Germans' initial line of resistance would be mines and underwater obstacles to stop invasion craft. Graduates of the school set up at Fort Pierce, Florida, were first organized into one-officer, six-man units, some of which accompanied the first wave of assault infantry at Normandy.

After Normandy, the UDTs were shipped to the Pacific to form the nucleus of the combat swimmer force being organized there. Basic tactics developed in the Pacific during World War II remain the basis for operational procedures today. There were usually two incursions of UDT personnel before an amphibious assault: a reconnaissance mission several days before D-day, followed by a demolition mission shortly before H-hour.

Today the primary mission of a UDT is to gather intelligence—it scouts in advance of an amphibious assault to conduct a nearshore hydrographic survey and report information on the sea approaches to the landing area. Team members get involved with demolitions only when they clear beaches or beach approaches of obstacles, or are ordered to destroy targets ashore.

Because the duty of special warfare personnel can be arduous in the extreme, and because each member of a UDT must be capable of operating alone as well as with the team, training for this type of duty is extremely rugged.

To qualify, the trainees, including officers, take many months of training starting with a grueling 23-week course that includes weeks of toughening runs, calisthenics, swims, races, competitive games, and rubber boat drills. The sixth week (Hell Week) is spent on all-night forced runs and boat portages through mud, swamps, sand, and surf; strenuous competitive games; obstacle course runs; hours of physical conditioning exercises; and a 16-hour trek over rugged courses surrounded by landmines and controlled explosives. For those who survive Hell Week, study in the following weeks is devoted in part to demolitions and

reconnaissance techniques, and small unit tactics in land warfare.

Next, the class learns diving physiology and the use of three types of scuba equipment—compressed air, pure oxygen, and mixed gas.

Up till now, the student is still qualifying. He is not a fully qualified special warfare operator or officer until he completes the entire course of instruction and training, graduates, and has served for 6 months with a UDT or SEAL unit.

There are three UDTs currently in existence, each composed of about 115 men and officers. Usually when discussing team operations, what is actually involved is a platoon of about twenty personnel. For our purposes the difference involves only numbers of people, and we will not make a distinction.

Team members may be taken, or go, to the AOA in several ways. Each may drop over the side of a rubber boat lashed to a speeding landing craft, parachute down, drop at low altitude without parachute from a slow-flying helicopter, or make the passage completely underwater by means of a swimmer delivery vehicle (SDV) or midget submarine. Depending on the anticipated length of submersion, water temperature, and depth of operations, the equipment may resemble normal scuba diving gear—face mask, wetsuit, swim fins, wrist compass, depth gauge, watch—plus such amenities as distress flares, knife, lead line, slate and pencil for writing underwater, and lifejacket. Not all items are needed for every dive, and a scuba tank may or may not be necessary.

In a typical team operation, a landing craft from the parent ship makes a high-speed run parallel to the beach while swimmers enter the water at 25-yard intervals. The team then commences a survey from the drop point toward the beach, using slate and pencil to record any unusual conditions or obstacles noted, and making periodic lead line soundings that will be used in determining the offshore gradient.

Should it become necessary to clear away obstacles, there are a number of methods

employed. The basic implement is a combat demolition pack containing blocks of high explosive that may be detonated individually or en masse. By using flotation bags, a team member can tow four or five of these 20-pound packs at one time.

Once its mission is completed, the team must be picked up and returned to the parent ship. Here again, several methods are available, the one used most frequently being the snare. In figure 23-7A, a swimmer raises his arm to indicate he is awaiting pickup, while the man on the raft alongside the pickup craft readies a snare. In figure 23-7B, as the boat goes by at high speed, the swimmer catches the snare and is helped aboard the raft by the snare man.

Less frequently used methods of recovery include trailing a ladder into the water from a helicopter or using a "skyhook" system. In the former, a frogman simply grabs the ladder and hoists himself aboard. In the "skyhook" aerial recovery method, an aircraft drops an inflatable balloon, tanks of helium to inflate it with, a body harness, and a 500-foot pickup line. The man on the ground or in the water dons the harness, hooks on the pickup line, inflates the balloon (on the other end of the pickup line) which rises and holds the line taut, and waits. A fixed-wing aircraft then snares the line with a V-shaped probe, lifts the man, and winches him aboard.

SEAL TEAMS

The second type of special warfare unit, also under surface force commanders for training and administration but independent of the UDT organization, are SEAL teams. There are two such teams, one team located at Little Creek, Va., and one at Coronado, Calif.

Basic SEAL training is identical to that received by UDT personnel. In addition, however, SEAL team members are trained to conduct and to instruct indigenous forces of friendly countries in unconventional or



134.170

Figure 23-7.—Developed during World War II, the snare method of recovering a combat swimmer is still the one most used by UDT personnel.

paramilitary operations. This means that they must be able to operate with little support in either restricted waters or a land environment.

SEAL units saw significant action in Southeast Asia.

CHAPTER 24

LOGISTICS

The Department of Defense Dictionary of Military and Associated Terms defines logistics as: “. . . ., those aspects of military operations which deal with: a. design and development, acquisition, storage, movement, distribution, maintenance, evacuation, and disposition of material; b. movement, evacuation, and hospitalization of personnel; c. acquisition or construction, maintenance, operation, and disposition of facilities; and d. acquisition or furnishing of services.

Because World War I and especially World War II approached total war—that is, war in which a country’s entire economy had to be marshalled for victory—the consequent emphasis on logistics made them unique. The human race, to be sure, had what it thought was considerable experience with war during more than 3000 years of fighting in some 34 centuries and in about 8000 recorded wars. But the logistical problems facing Napoleon and General Pershing, to take two examples in recent history, were so different that modern logistics may be said to have begun in Pershing’s day.

Napoleon thought mainly in terms of strategy and tactics. He never had to think of logistics in terms as broad as Pershing did. Napoleon could say, “An army marches on its stomach,” a maxim frequently quoted. He meant simply that well-fed soldiers win campaigns. Some writers have referred to Napoleon’s defeat in his Russian campaign as a “logistical defeat.” Napoleon failed because he thought in terms of Central European roads instead of Russian roads. Bad weather added to his transport problems. A combination of circumstances that struck at the logistical aspects of his campaign brought about his downfall. Badly designed transport, improper

forage, insufficient supplies, inadequate protection against the cold—these played a major part in Napoleon’s most disastrous failure.

Pershing had to think as much in terms of logistics as in terms of strategy and tactics. His soldiers needed food, of course, but they needed more than just food to enable them to defeat the Central Powers. And in World War II each soldier overseas required twelve tons of food and equipment at the start and another ton a month to keep going.

Let us try to define briefly the words strategy, tactics, and logistics. Strategy is concerned with the general plan for the employment of a nation’s fighting forces. Tactics refers to specific maneuvers of combat moves and special techniques of fighting. Tactics, a narrower term than strategy, deals mainly with the operational execution of a strategic plan. Tactical victories, no matter how inexpensive and brilliant they may be, may count for little unless they fit into the pattern of the strategy involved.

Logistics refers to the total process by which the resources of a nation—material and human—are mobilized and directed toward the accomplishment of military ends. Thus, while strategy provides the scheme for the conduct of military operations, logistics provides the wherewithal.

The emphasis on the mobilization of all forces slanted toward a definite military goal is the new note. Strategists can no longer win wars if their concern is only with the disposition of a nation’s armed forces; nor can tacticians win wars by means of brilliantly executed single battles. Logistics, strategy, and tactics are now

interdependent. It is impossible to think in terms of one without giving proper weight to the other two. One may say without danger of overemphasis that only a nation possessing abundant material resources and manpower, and furnished with a master plan logistically conceived, can win a war in the present era.

LOGISTICS THROUGH WORLD WAR I

The naval revolution (conversion from sail to steam) which began fully to be resolved in the 1880's, complicated the logistics problem.

The nature of this revolution impressed Mahan and gave it considerable space in his writings. He thought about it logistically, as can be seen by his comments. Mahan was impressed with the number of British bases on the Atlantic and in the Caribbean, and he was concerned about our lack of such bases. He pointed out that on the Gulf of Mexico we had not "even the beginning of a navy yard which could serve as the base of our operations." He took the position that no European nation should be allowed to acquire a coaling station within 3000 miles of San Francisco. "For fuel is the life of modern war," he wrote. "It is the food of the ship; without it the modern monsters of the deep die of inanition." He was also distressed to see the Americans so eager to acquire fast ships while ignoring the means whereby they should be supplied with coal. Because the United States then had no foreign establishments either colonial or military new American warships were, as Mahan picturesquely but truly put in, "like land birds, unable to fly from their own shores."

Mahan's important book, *The Influence of Sea Power upon History, 1660-1783*, published in 1890, has as its central thesis this thought: The United States, if it is to survive as a nation, must have naval bases as links between the now dependent warships and the strategic command of the sea. The curious contradiction which Mahan pointed out so ably was that the command of the sea by modern warships demanded external sources of support if they were to retain the seakeeping ability which the technical revolution was taking from them.

With the approach of the Spanish War, we were so far from being logistically prepared that we had to do serious thinking about the means of maintaining our fleet overseas. Paradoxically, though the Philippines were much farther away from the United States than was Cuba, Dewey's logistic problems were relatively simple. At Hong Kong he was able to fill his bunkers with coal, purchase two supply steamers, and hold himself in readiness for any eventuality. It was not difficult for him under these circumstances to proceed and attack the enemy when orders came.

Because the blockade of Cuba required the maintenance of a naval force constantly at sea, there resulted a number of serious logistic problems. There was insufficient coal for the ships. They had to be withdrawn from the blockade to return to port for refueling, which weakened the blockade; or they had to be refueled at sea, which often resulted in damage both to colliers and to warships. Eventually a coaling station was established at Guantanamo, and the fuel difficulties were lessened.

Though World War I hinted at "total war" as it is understood today, for the United States it was not essentially a naval war.

The Navy's logistic problem was far easier than the Army's. To maintain its forces overseas, the Navy established 15 naval bases and 27 aviation bases and operating stations. Port organizations were set up in 20 European ports. Supplementing these facilities ashore, logistic support was provided to the operating forces by repair vessels and tenders at Queenstown, Brest, Gibraltar, Corfu, and other strategic positions.

Logistically speaking, American naval problems were far simpler than they proved to be in World War II, for American bases in British and French harbors were readily available. Though installations frequently required alterations and renovation, the labor and efforts were by no means comparable to what they would have been if we had to build from the ground up.

Another fact indicating the simplicity of our naval problems in World War I is that with few exceptions only light naval forces were involved. The American battleship division at Scapa Flow, which was the principal exception, enjoyed all the comforts of a well-established British base.

Admiral Sims described the idea of moving the whole North Atlantic fleet to European waters as strategically poor and logistically impossible. "What naval experts call 'logistics' of the situation," he later wrote, "immediately ruled this idea out of consideration. The one fact that made it impossible to base the Fleet in European waters at that time was that we could not have kept it supplied, particularly with oil."

Even for the lighter forces, many heavy repairs were done in the United States. When destroyer boilers needed replacement or retubing, the vessels returned to the United States.

The role of the Navy in World War I, that of transporter, was logistically different from its role in World War II. In World War I, the Navy was responsible only for picking up the cargo at one terminal port and delivering it at another. The true logistic test of the Navy came in World War II.

LOGISTICS IN WORLD WAR II

Before World War II logistical support was considered by a majority of the officers of the Navy a routine administrative problem. The primary problems normally presented were those involved in fleet concentrations and winter cruises. These were usually of such short duration that ships overseas required only fuel, fresh provisions, and emergency repairs, having stocked to capacity in all other items before leaving home bases. Moreover, ships were usually in excellent material condition, having received thorough overhauls at scheduled periods.

In the spring of 1940, when upon the completion of spring maneuvers the entire United States Fleet was ordered to Pearl Harbor, the Navy found itself compelled to deal with a genuine logistic task. As a result, Pearl Harbor with all its failings was immeasurably better prepared in 1941 than it had been in 1940 to maintain a position 2000 miles from our shores. The United States had taken at least the first of many steps by which we ultimately projected across the enormous areas of the Pacific a naval force capable of controlling that ocean.

It became evident early in World War II that the war would revolve around the physical means available for prosecuting it; that logistics would be an important factor in determining the strategy to be followed. This is evidenced by the early decision to concentrate on the Germans first, with the force we could make available—holding the Japanese at arm's length, so to speak, while pressing the war against the Germans. The ships, tanks, and planes then in existence were insufficient to prosecute an all-out offensive on both fronts.

In World War II the problems of production of munitions in our factories and their transportation and distribution to the Armed Forces were gigantic. Logistics planning and the implementation of plans involved not only the service personnel particularly trained in that branch of the military art, but also area and tactical commanders, port authorities, railway, truckline and airline executives, warehousemen, longshoremen, manufacturers, and on down through the entire working population of the United States.

How logistics forms the basis for modern war, how logistics determines the nature of modern strategy and tactics may be seen by a glance at some of the wartime problems involved in the Atlantic operations against Germany and in the Pacific operations against Japan.

Because the war was fought in Europe, Africa, and Asia, men and equipment had to be shipped or flown over 3000 miles across one ocean and over 7000 miles across the other.

The overseas communications of the United States in World War II covered the globe and extended 56,000 miles. The Naval Air Transport Service flew routes stretching over 80,000 miles. The Navy maintained a network of more than 700 depots and stations in which were kept stocks of over 4,000,000 kinds of items.

Narrowing the consideration to bring the matter into sharper focus, the stocks on hand at Guam alone would have filled a train 120 miles long. In just one month more than 25,000,000 barrels of bulk fuel were shipped to the Pacific for military purposes. At Guam 1,000,000 gallons of aviation gas were used daily; in the area around the naval supply depot on that

island were 93 miles of roads. In the Okinawa campaigns, 50,000 tons of 5-inch to 16-inch projectiles were fired by surface ships, which meant that a new supply had to be built up for the assault on Japan. Each month 600,000 long tons of military equipment had to be sent out into the Pacific Ocean areas. Finally, when peace came, 600,000 tons had to be shut off in the face of all sorts of difficulties connected with transportation, storage en route, and so on.

But the matter of logistics is not simply a problem of producing enormous amounts of material and transporting them immense distances. Also vital to success in war is the matter of timing. Convenient though it would be to have all the components of a Navy engaged in offensive operations moving at the same speed, a strategist must work with more complicated situations. In the Okinawa campaign, for example, 1400 ships took part, some traveling at 8 or 9 knots, some at 11 or 12, and some at 15. Men had to be trained in four widely separated areas ranging from 1200 to 8000 miles from the target. All men and all ships had to have both surface cover and air protection overhead with ships coming from a variety of ports and with planes from a variety of airfields. Men, planes, and ships had to be supplied during the weeks of training preparation before the invasion, during the invasion, and after the invasion—and these supplies came from all over the globe. All the ships, planes, and men traveling at such varied speeds over immense distances with different winds, tides, currents, channel and port conditions had to arrive at a definite spot at a definite time. That operation was only one of many that presented a vast problem in logistics to the Navy in World War II.

LOGISTICS IN KOREA

While the war in Korea introduced no new logistic problems, the very nature of its opening seriously hampered operations. Overnight our "peacetime" Armed Forces were transformed into wartime forces and transported to combat areas on the shortest possible notice. The customary mobilization or buildup period was totally lacking. The national economy was not mobilized for an all-out war effort, for it was

expected that the conflict would be a short one—President Truman had labeled it as a "police action."

American forces made two amphibious landings early in the war, one at Inchon on the west coast of Korea and the other at Wonsan on the northeast coast. They, along with the Army of the Republic of Korea (ROK) and other United Nations troops, quickly overran almost the whole of North and South Korea. However, when Communist China threw several divisions into the fray, United Nations forces were brought up "all standing," and we finally realized that we had a war on our hands that promised to be anything but short-lived.

At that time, the logistic situation was serious. Almost from the start, our troops were plagued by lack of transport in that mountainous country of few railroads and primitive roads. The numbers of vehicles for hauling supplies and troops were always inadequate, and frequently, troops were forced to resort to pack animals and pack men to move their supplies.

In some cases, troops were entirely dependent on air drop for resupply. For example, beleaguered Marines fighting their way out of the Chosin Reservoir area were supplied by air. In the 12 days required for the withdrawal they had requested 119,630 "C" rations; 37,710 gallons of gasoline; 3,552,940 rounds of small arms ammunition; 58,862 mortar rounds, and 9,620 rounds of 105mm ammunition. We pay tribute to those responsible for supplying the Marines. Over 70% of the material requested was delivered in usable condition, and as a result, the valorous, hard-fighting Marines were able to extricate themselves from an extremely precarious situation.

Supplying an army over 5000 miles from home is not an easy task. It takes time to get industry into motion, and it takes time to transport the equipment once it has been manufactured. However, there was a source of supply much nearer the combat zone. Hundreds of vehicles and tons of other material had been abandoned in Pacific islands after World War II by our homeward-bound troops.

In an attempt to partially alleviate the logistic situation, those islands were scoured to round up all usable equipment. After being renovated as necessary in Japan, the material was rushed to our forces in Korea. Besides reducing the time it took to get the material to our troops, this procedure gave Japan a much needed economic boost.

As the conflict wore on, more and more supplies and men streamed through the ports of Korea to the fighting front. After months of desperate combat with a determined enemy, our forces and our UN allies finally hammered their way back to the 38th parallel, the dividing line between Communist North Korea and the Republic of Korea to the south. A truce negotiated at Panmunjom ended the fighting, but, unfortunately, decided nothing.

An essentially successful air operation destroyed much of the rail and highway support network of the Communist armies and might have hastened the end, but the Communists by means of tremendous numbers of pack animals and pack men managed to maintain logistic support of their armies spread across Korea.

Perhaps no new logistic lessons were learned in Korea, but two old ones must have been relearned. One, that "too little and too late" sets the stage for defeat, and the other, that no means of support can be ignored.

LOGISTICS IN VIETNAM

The military buildup in the Republic of Vietnam (RVN) in 1965 presented enormous logistic problems. The Republic had vastly inadequate facilities or commodities needed to support the large number of friendly military forces (eventually more than half a million men) descending on the small country.

Initial attempts at logistic support by rail and road, after supplies were landed, were unsuccessful because of Communist guerrilla activity. Road convoys were shot up and the one railroad was cut up. Then the Allies tried a sea-air-power combination. Cargo would arrive by ship, be transported along the coast by landing craft, then be carried to inland base camps by

aircraft. This procedure was satisfactory only as a stop-gap measure. As the size of the in-country forces grew, so grew the need for more rapid and effective logistic support. Complicating the problem was inadequate cargo clearance facilities at most port wharves and piers. In some cases, ships anchored 5 miles out and discharged into lighters. Thirty-day turnaround times for cargo ships were not unusual.

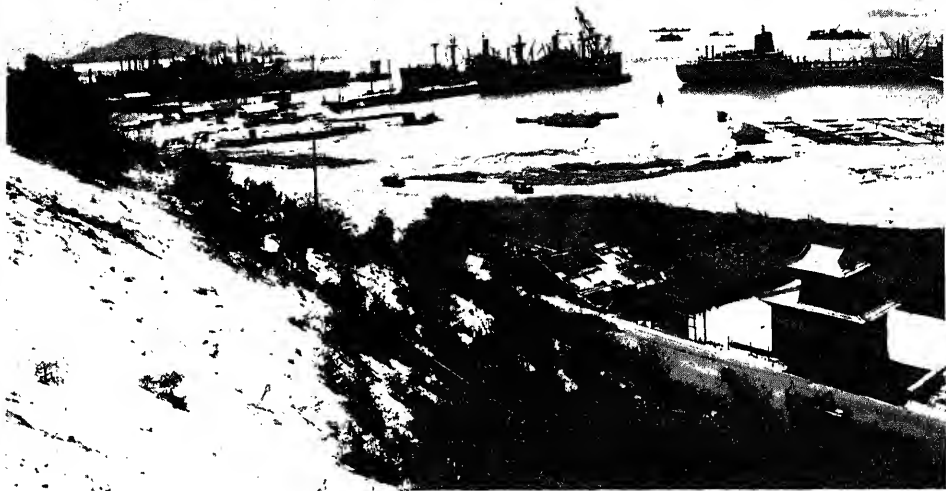
It rapidly became obvious that facilities would have to be provided by the Allies to back up their own forces over a 10,000-mile logistic pipeline. Practically from scratch, the United States developed its own command, communications, and logistic network. Among other things, entirely new port complexes, such as Cam Ranh Bay in the II Corps area (figure 24-1) and Da Nang in I Corps, were constructed. A complex of military terminal facilities (named Newport) was added to the wharf area in Saigon, increasing its military cargo-handling capacity by more than 50%.

In 1965, there was a total of one deep-water port in RVN; by 1968, United States military forces (notably Navy Seabees and Army Engineers) and civilian firms under contract had constructed six more, and ship turnaround time was reduced to less than 1 week. In another area, the 15 airfields available in 1965 for use by large transports was increased within 3 years to a total of 89.

Chapter 23 described in some degree the unique nature of the type of warfare involved in South Vietnam, which required combative operations not usually engaged in by Navy forces. The wide divergence in scope and area of operations also required varying approaches to the logistic problems.

NAVAL SUPPORT ACTIVITY, DA NANG

The Naval Support Activity, Da Nang (NSAD) was established in 1965 primarily to support the Third Marine Amphibious Force in the five provinces of I Corps Tactical Zone in the extreme northern part of the RVN. The port of Da Nang grew from an anchorage to a



134.175X

Figure 24-1.—The huge harbor of Cam Ranh Bay had been converted from a vast sandpile into a major seaport serving all of central South Vietnam. Primarily a logistic base far removed from “where the action was,” Cam Ranh was of vital importance because of its deep, natural harbor, fine port facilities, and modern aircraft runways.

deep-draft seaport (figure 24-2) handling a million tons of cargo every 3 months, 40% which had been reshipped up and down the 225-mile length of the I Corps area. From an original total of 1400 officers and men, NSAD enlarged to a force of 8000 Navy personnel plus more than 3000 Vietnamese civilians.

Storage facilities at Da Nang grew from six 40- by 100-foot buildings to a complex of warehouses totaling almost a million square feet of covered storage space. Outlying detachments of NSAD, such as those at Phu Bai and Chu Lai, provided additional storage space and supply landing facilities.

The operations department at NSAD, charged with movement of cargo along the coast of I Corps, had some 185 craft assigned to it. The repair department maintained a small-craft repair facility, including a floating drydock, to

overhaul and maintain service craft. An air-conditioned hospital, with a staff of 500, provided full medical and dental facilities. The supply department was responsible for the movement, storage, and stock control of cargo. Stock control, which carried more than 83,000 line items, processed 23,000 receipts a month.

NAVAL SUPPORT ACTIVITY, SAIGON

The Naval Support Activity, Saigon (NSAS) came into being in May 1966, about 6 months after NSAD. Its job was to satisfy logistic requirements for U.S. Navy units in the II, III, and IV Corps Tactical Zones of the RVN.

Although NSAS personnel were kept busy ordering, receiving, sorting, loading, and



134.176

Figure 24-2.—Da Nang, at one time only an anchorage, now has deep-water piers allowing oceangoing ships to unload directly on to the shore. Much of the cargo landed at Da Nang was distributed to other ports and bases along the coast of I Corps Tactical Zone by small craft.

shipping the thousands of items needed to wage war against the Viet Cong, their primary concern was not supply, at least not to the extent required of NSAD.

Two thirds of NSAS personnel were not located in the Saigon headquarters. They were stationed at outlying bases distributed throughout the three corps areas. Their main concern was logistic support of forces engaged in Operations Market Time, Game Warden, and Stable Door (the last being patrol activities of the harbor defense effort).

Outlying detachments provided support services such as repair and maintenance of small craft, vehicles, and material-handling equipment. They also provided berthing, messing, administration, medical, postal, and supply

support for personnel stationed in the areas. Support bases varied from completely isolated camps like Cam Ranh to locations in the center of good-sized Delta towns.

Radiomen and Electronics Technicians from NSAS constantly visited the various detachments, coastal surveillance centers, and harbor entrance control posts to keep vital communication channels open and operating. Roving supply personnel would troubleshoot logistic problems. Administration personnel visited field activities to assist and coordinate personnel, medical, special services, and educational services programs for the thousands of people supported by NSAS. There were many others—such as circuit-riding chaplains—who spent half their tour somewhere outside Saigon.

MILITARY SEALIFT COMMAND (MSC)

Providing immediate sealift capability in the event of an emergency has been the mission of MSC for many years. In Vietnam, where sealift accounted for more than 97% of the logistic support of the United States and its Allies, the mission had been accomplished with a fleet that included aircraft ferries, tankers, troop ships, roll-on/roll-off vehicular cargo ships, and refrigerated and dry-cargo ships.

At the beginning of the United States buildup in RVN, MSC controlled 75 dry-cargo ships and 16 transports. Cargo movement to Vietnam in 1965 averaged 86,000 tons a month; transports made 21 lifts carrying, by the end of the year, 94,000 troops including 9,500 from the Republic of Korea.

Thereafter sealift requirements increased markedly. For a large portion of 1966, the entire fleet of MSC transports continued operating in the Pacific solely in support of RVN operations. The worldwide MSC-controlled dry-cargo fleet grew to 426 ships; cargo deliveries to RVN (figure 24-3) rose to 1 million tons monthly. From about 1969 until its conclusion half of the worldwide MSC fleet was directly engaged in logistic support of the war effort.

SEVENTH FLEET LOGISTICS

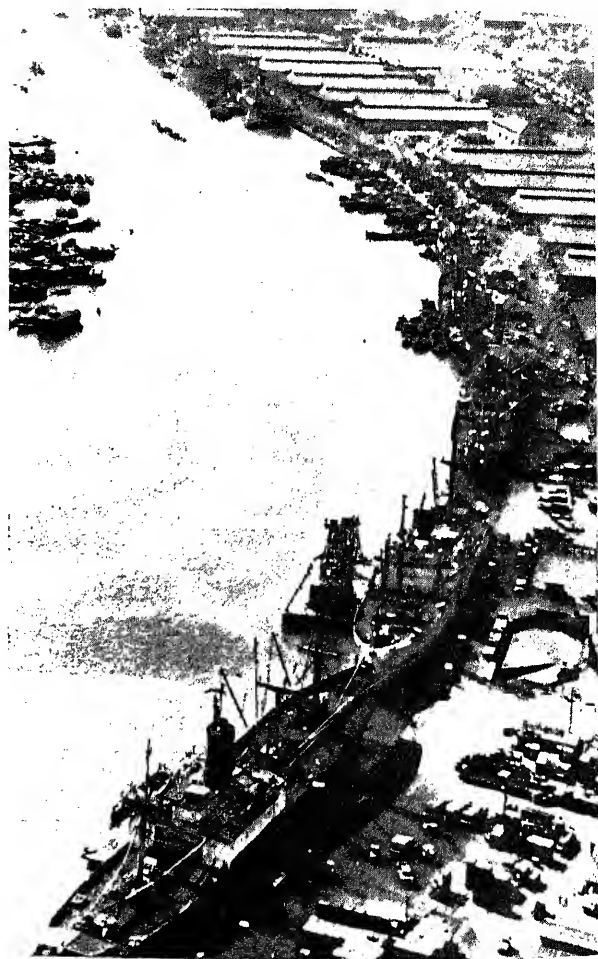
The discussion thus far has centered around logistics as it pertained to in-country forces. When the Seventh Fleet was constantly on station off the Vietnamese coast, it received its logistic support from an entirely different source—the Subic Bay Naval Base.

Until the Tonkin Gulf incident in August 1964, which brought the U.S. Seventh Fleet into Vietnamese waters, Subic Bay Naval Base was called “Sleepy Hollow” because of its leisurely pace of operations. Located on the western coast of Luzon only 2 days by sea from Vietnam, however, Subic immediately became the Navy’s most strategic, and busiest, base in the Western Pacific.

Serving as service station and supermarket for the Seventh Fleet, the base was the primary jumping-off point for naval activities in Vietnamese waters.

In 1964, the base was visited by an average of 98 ships a month. At the height of the Vietnam war the figure exceeded 2000 per year, or almost double, the previously monthly average.

The naval base, consisted of 8 major commands, was manned by 4,300 military and



134.177

Figure 24-3.—Ships under control of the Military Sealift Command are strung out along the wharves at Saigon while unloading or waiting to unload their vital cargoes.

civilian personnel plus 14,000 Filipino nationals. Each command worked 7 days a week, around the clock, to keep up with the workload.

At the ship repair facility, technicians and craftsmen worked 3 shifts, averaging more than 56 hours a week, to keep the Fleet on the line in Vietnam and in operation throughout Southeast Asia. The largest part of their workload was repair of mechanical and electrical gear breaking down under the strain of 30 to 40 days on the line.

The naval supply depot is the site of a \$3 million packing plant containing such features as an explosion proof dehumidified/temperature controlled preservation and packaging area; an automated materials-handling system; and a highly mechanized manufacturing line for pallets. To meet the needs of the Fleet during the Vietnam operation, the supply depot processed about 13 million pounds of food every month and supplied some 35 to 40 ships each day. The NSD fuel pier handled the largest volume of fuel oil of any naval facility in the world.

The Naval Air Station, Cubi Point, carved from the mountainous jungle surrounding Subic Bay in a famed Seabee task of the 1950s, was the primary maintenance, repair, and supply center for planes of the Navy's carrier strike force. At least one of the carriers deployed to the Tonkin Gulf usually tied up at Cubi where, as the carrier received repairs and supplies, maintenance crews worked on aircraft squadrons.

The 12,000-acre naval magazine was the main storage facility for ammunition used by Seventh Fleet ships and planes, and units of the Pacific Marine Amphibious Forces engaged in the shooting war in Vietnam.

Underway Replenishment

When ships were on the line off Vietnam operating for stipulated periods, they were replenished at sea by ships of the Service Force that plied between the Seventh Fleet and Subic Bay. Depending on the capacity of the replenishment ship and requirements of the

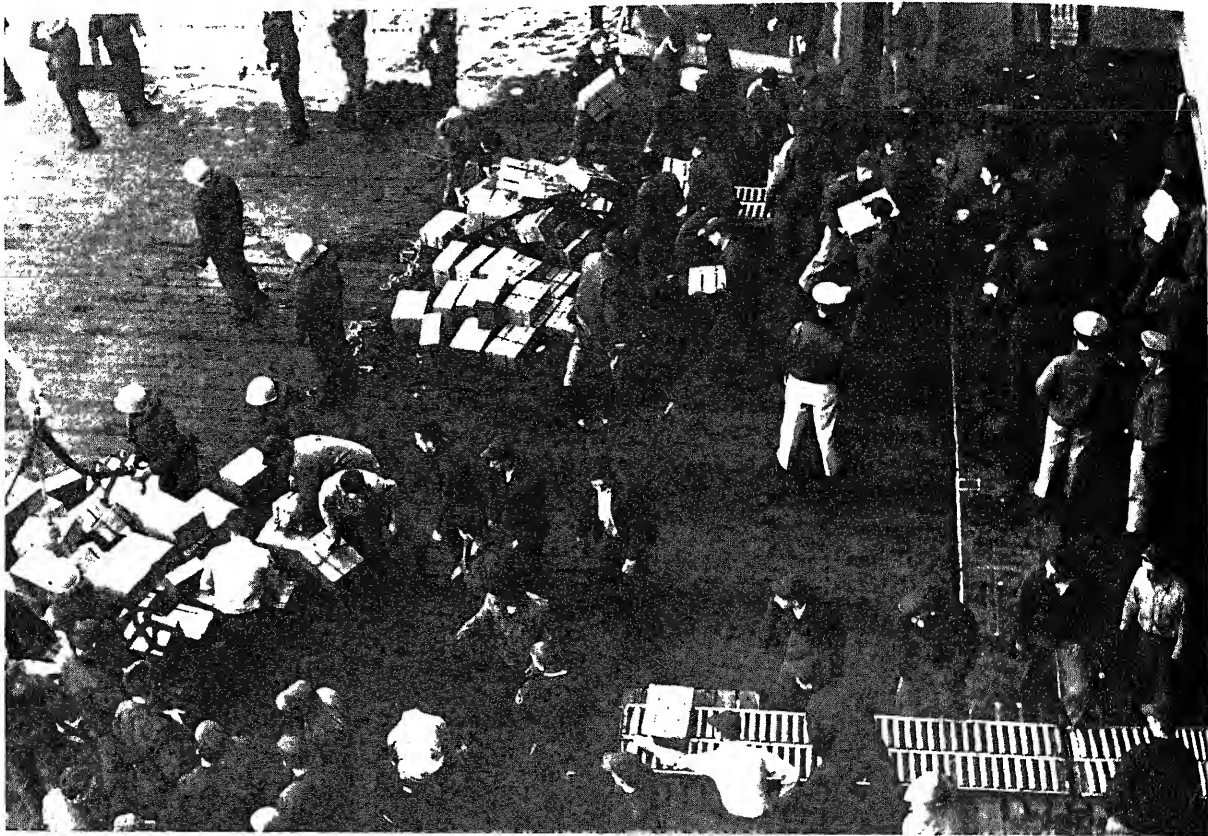
Fleet, a typical cycle of operation for a large underway replenishment (UNREP) vessel might be 15 days on station with the Fleet, a high-speed run to Subic for reload, 5 to 6 days in port loading to capacity, then a rapid return to station.

The process of replenishing a ship underway is greatly expedited if the replenishing vessel carries several types of commodities. Replenishing involves a certain amount of dead time on the part of the combat ship in preparing to go alongside the replenishing ship, connecting lines, replenishing (figure 24-4), breaking away upon completion, and returning to station. The fewer "stops" a ship to be replenished has to make, the less time she remains off station.

With this in mind, ship designers some years back designed the fast combat support ship (AOE) described in chapter 18, the first of which was commissioned in March 1964. The AOE (figure 24-5) is a multiple-product ship that can transfer missiles, conventional ammunition, fuel, and general and refrigerated cargo to other ships at sea. Combining in one large ship the functions of three major Service Force ships—oiler, ammunition ship, and combat store ship—the deck layout and cargo-handling equipment allow the AOE to service the smallest patrol craft or the largest carrier.

Adding a then-new dimension to the field of logistic support, the AOE is built with a helicopter flight deck capable of supporting three Sea Knight helicopters. The use of helicopters, known as VERTREP (vertical replenishment), has several advantages. It enables the transfer of provisions (figure 24-6) actually faster than a receiving ship can stow them away; it enables transfer of highly perishable commodities, such as frozen food, without the problem of defrosting; and it makes possible the replenishment of a ship that may be 40 or 50 miles away.

The AOE, which is larger than other UNREP ships, has 15 replenishment stations, each capable of transferring a load of cargo to a ship alongside in 90 seconds. On a normal UNREP operation (carrier to port, destroyer to starboard), the deck force can transfer 300 tons of cargo per hour. The AOE carries over 5



134.178

Figure 24-4.—Replenishment at sea requires close cooperation between the replenishing and receiving ships. Here crewmen hasten to clear away netloads of provisions to make room for more supplies being sent over by the UNREP vessel.

million gallons of petroleum products, 1600 tons of ammunition, and 500 tons of dry and refrigerated stores, in addition to miscellaneous general cargo and mail.

THE STRUCTURE OF NAVAL LOGISTICS

The problem of logistics in any future war, except limited conflicts, would exceed anything our nation has so far witnessed. The extent of total conflict would probably be such that all of our economic resources would have to be mobilized for the successful prosecution of the fighting. While this situation is entirely different from that faced by, say, John Paul Jones, the

basic structure of logistics today is the same as it was in Jones' time. In arming, supplying, and manning his ships, Jones went through the processes of determination of requirements, procurement, and distribution, even though his problem was not as extensive and he probably didn't think of it in such formal terms.

DETERMINATION OF REQUIREMENTS

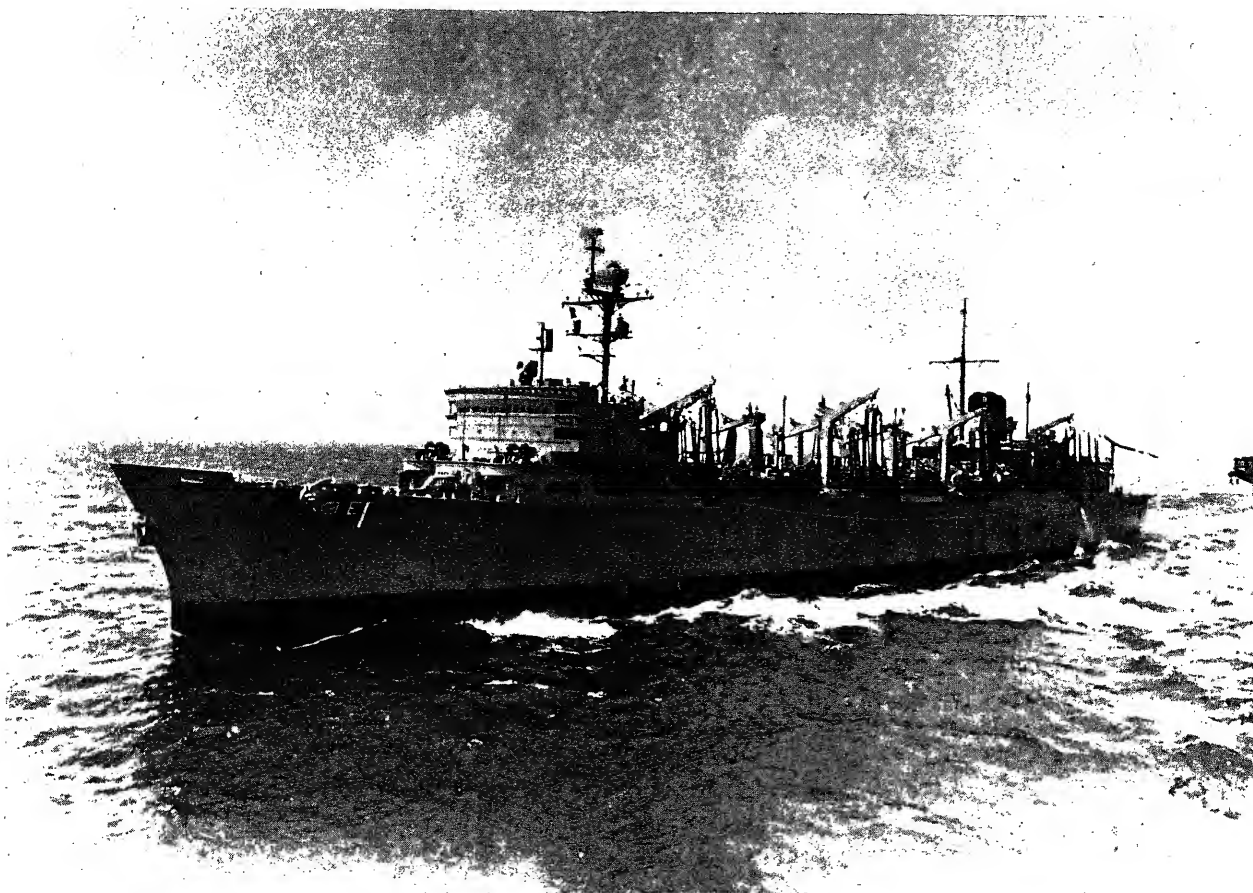
The determination of requirements is the first step in the formation of any logistic plan. It is a military responsibility and prerogative, and it is inextricably involved with strategy and tactics. It encompasses determination of overall

national and international requirements for the conduct of global war all the way down to the determination of requirements for a small task unit engaged in a minor operation.

Before any determination of requirements can be made, strategy must be known. A strategic plan enables the Joint Chiefs of Staff to assign tasks appropriate to the roles and mission of each branch of the Armed Forces, and constitutes an initial foundation for the determination of overall logistic requirements, for from them is derived the size and composition of combat forces to be supported in peace and to be mobilized in war.

Other considerations which enter into the process of determination of requirements are the support of civilian economy, health, and morale. These are vital matters, for we draw all our strength from our people; if these factors are not adequately considered early in any study of national requirements, their inevitable intrusion at a later date will seriously upset all calculations. Then too, we will always have an overseas logistic support problem as long as we have overseas allies.

We must estimate the needs for the support of our allies and, possibly, of certain neutrals. Here we enter a realm where military, political,



3.275

Figure 24-5.—The fast combat support ship is a great deal more than a “meat and potatoes” supply ship. She carries more oil than most oilers, more ammo than most ammunition ships, and as much food as a combat (refrigerated) store ship.

and economic factors become very complex. Nearly all consumers are prone to overestimate their requirements. In some cases this may merely reflect poor planning, while in other cases it may be a matter of trying to "get while the getting is good."

Neutrals present additional problems. In some instances, where there is genuine benevolent neutrality, we have a stake in maintaining this status. In other cases, our economic assistance and cooperation serves a purpose in cutting off from the enemy sources

of badly needed critical materials, and in still other cases, we may merely be ensuring our own sources of supply.

We must remember the requirements for military government in occupied countries. The neglect of this factor was a deficiency in our planning in the first part of World War II. Since wars are fought as an extension of national policy, the military must not ignore the study of political factors. It does us no good to win the battles and lose the political fruits thereof.

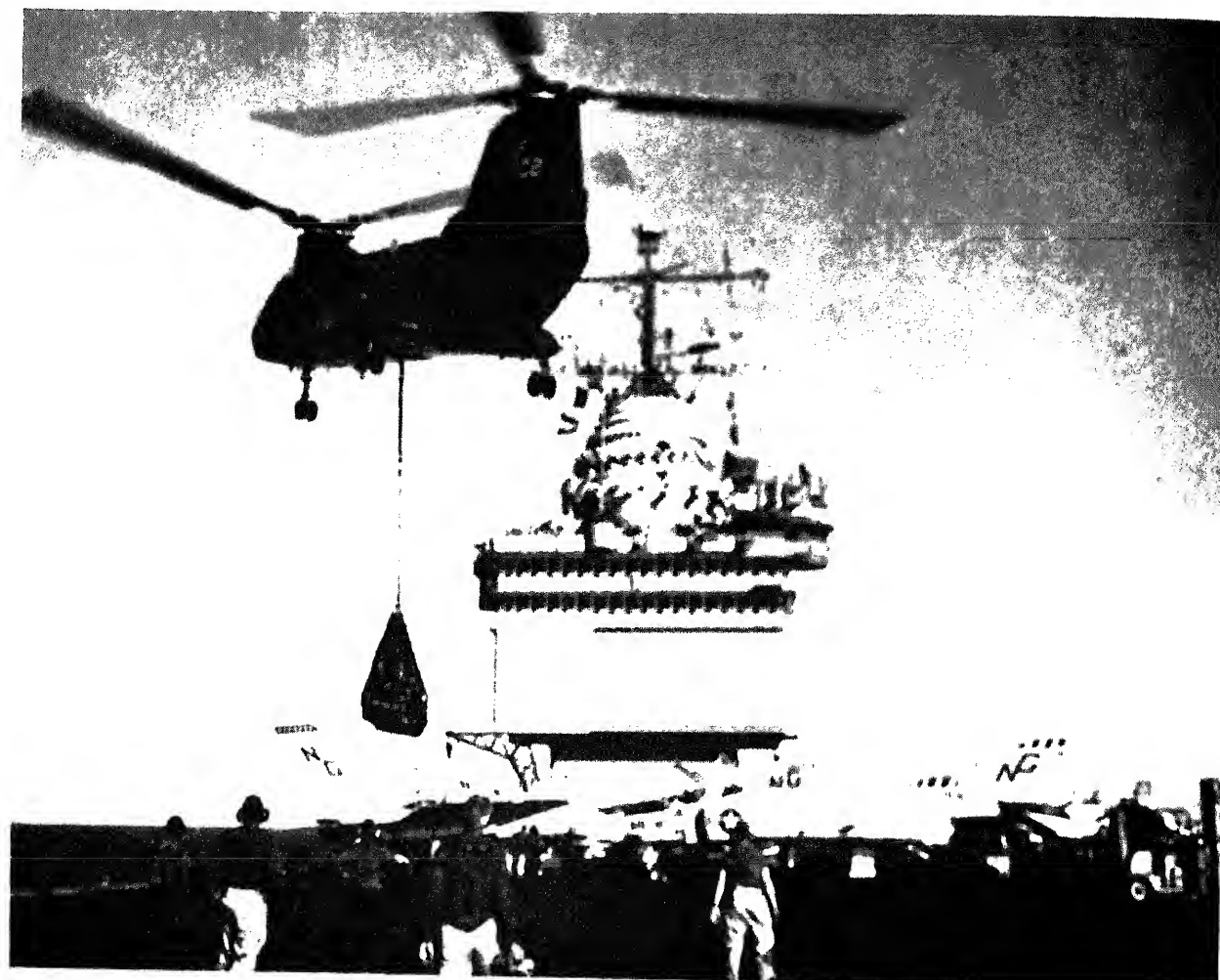


Figure 24-6.—A Sea Knight helicopter from USS Sacramento deposits ammunition on the flight deck of the Enterprise during VERTREP. Marines also depend on this type of helicopter for vertical envelopment in an amphibious assault.

3.115.1

PROCUREMENT

Procurement lies between requirements and distribution and includes some of each of these elements. It is based upon the determination of requirements and also, in general, on the production sources available and to be developed. In many respects it may be thought of as the point or zone of contact between the Armed Forces and the civilian economy, and it is primarily controlled by the civilian element of the defense structure. Thus, while elements of the Navy Department may undertake the actual details of procurement, they do so under policies prescribed by and under the watchful eyes of the Secretary of the Navy and his civilian assistants.

Procurement of adequate goods rests entirely upon a nation's ability to mobilize its economy for the most effective conduct of a war. This economy mobilization affects the lives, property, working conditions, and thinking of the entire population. While it is civilian controlled, obviously, its only purpose is to provide the supplies, equipment, and arms for combat, and it requires great understanding and cooperation between the Armed Forces and industry, labor, and the general civilian population.

In an analysis, procurement may be thought of as comprising such factors as: establishing specifications for the goods required; standardizing goods, insofar as is practicable; cataloging to identify items and to eliminate the probability of dozens of manufacturers' numbers to identify the same item; purchase; material and cost inspection; and priorities and allocations.

Accumulation at continental depots is a phase of procurement, but it is here that procurement blends with distribution.

DISTRIBUTION

Distribution, the last of the three basic elements of logistics, starts with accumulation at continental depots and ends with delivery to the ultimate consumer. It derives from procurement, is always involved with strategy, and ends up as

a vital element of tactical combat. A good distribution system must be responsive, flexible and economical, for without these interdependent characteristics, the system is certain to break down under combat conditions.

Since the purpose of such a system is to fill the needs of the combat forces, it must be responsive to the operational needs of those forces. This implies a very close coordination with the operational forces and at times a measure of control by the operating forces.

The distribution system must be flexible since it must be capable of great, rapid, and effective expansion from peace to war. It must be able to provide for the swift and unexpected changes in plans and operations that characterize war, and it must be able to accommodate itself to changes brought about by new developments in technical fields. This means close coordination with technical activities as well as with operating forces.

Finally, the distribution system must provide the greatest possible economy in peace and in war, consistent with rendering effective support to the combat forces. This is essential to provide the greatest possible degree of national security for each dollar allocated by Congress. There is never enough of anything to meet all the needs of all the forces. Lack of economy means wasted manpower, wasted material, wasted transportation--and it means that some combat force is being unnecessarily deprived of adequate means of combat. However, economy in logistics must be balanced with the need for maintaining adequate reserves.

The elements of distribution, blending and overlapping in variable degrees, are accumulation, storage and issue, transportation and control.

Accumulation, normally outside the field of the operational commander, is in the "producer" phase of logistics. Yet, officers should understand that accumulation is impossible without a timely statement of requirements, which in turn is an integral part of the "consumer" phase of logistics.

Storage and issue, normally technical elements, are dependent on what, when, and where the distribution system must deliver to

meet the needs of the operating forces. They are also dependent on what, when, and where certain facilities (figure 24-7) must be provided to make the proper deliveries. Thus, it is one problem to determine the requirements of a fleet for fuel oil, but it is an altogether different, though related, problem to determine the tankers, loading and unloading facilities, and tank farms which are necessary to handle and transport the quantity of fuel oil found to be necessary.

Excessive stockpiling at accumulation points, both on the continent and overseas, cripples economy and must be kept to a minimum. Therefore, storage and issue must neatly dovetail with transportation. In the field of transportation we find the greatest overlap of all, because transportation is the vital link that connects and vitalizes all elements of supply and logistics. It is local, continental, and intercontinental. Distribution agencies control transportation by rail, truck, air, and water in the zone of the interior, but as the combat zone is approached and entered, transportation operation and control becomes a most urgent prerogative and concern of the tactical commanders.

In all fields of supply, important savings are made possible by the application of good control measures. Good control results in direct reduction in overall procurement, storage, and transportation with attendant decreases in operating and administrative personnel. In most cases, this, in turn will be accompanied by a secondary reduction in personnel who are engaged in procuring, training, equipping, transporting, administering, and housing the personnel who were directly concerned with logistics.

Control measures include cataloging, obtaining, and correlating program and availability information. The value of these things is so obvious that little need be said about them. However, we might add that they expedite processing and handling and give us the ability to match procurement and distribution with requirements and develop the responsiveness, flexibility, and economy characteristic of a good distribution system.

LOGISTIC PLANNING

Our country is war-ready, able to match any opponent in spirit and determination. But our resources and manpower are definitely limited. If we can organize in the most effective way our own resources and those of allied and friendly powers in the world,

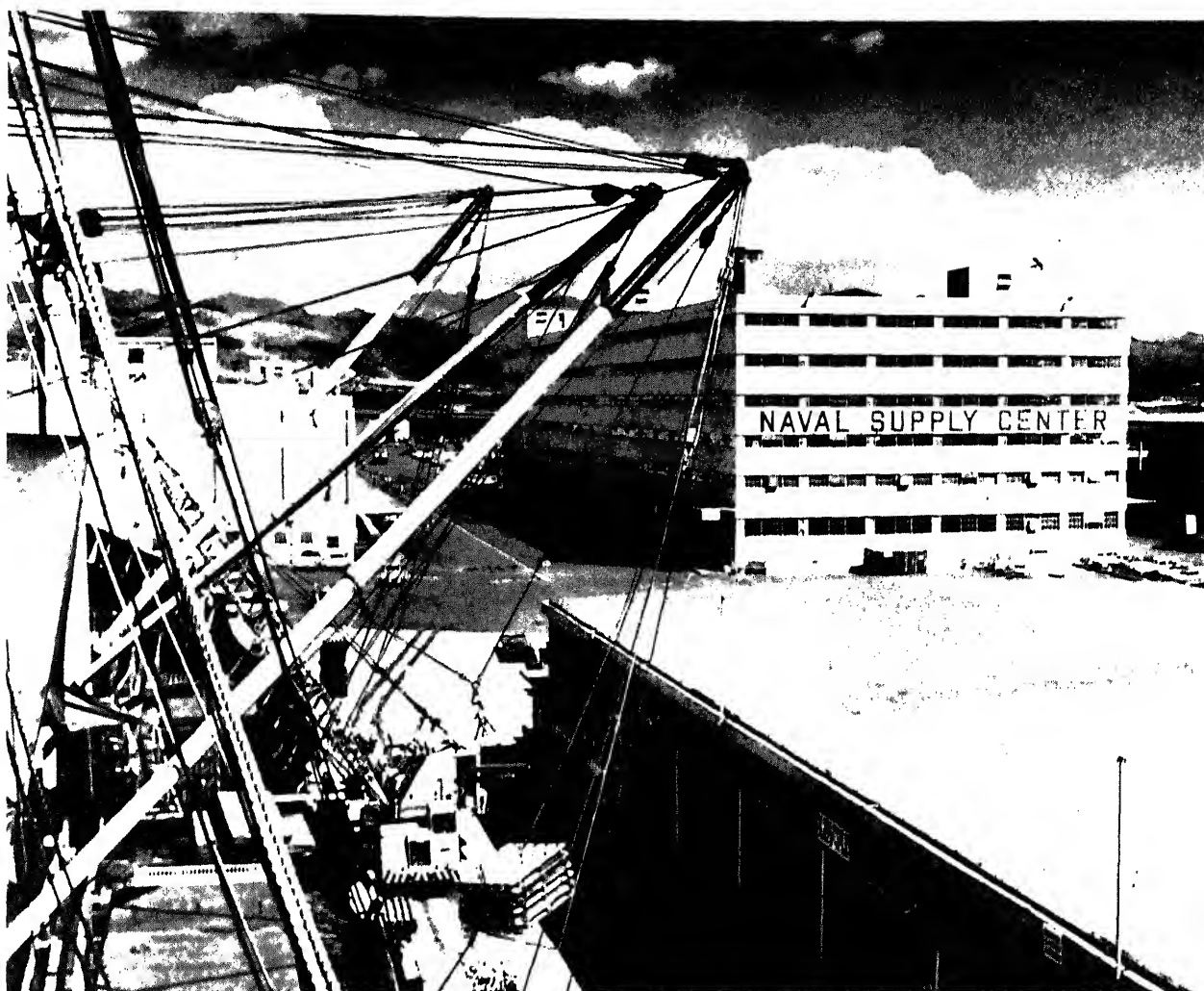
Should total war ever come to us, the whole national economy would have to be mobilized efficiently. Our national economy is very complex and the organization of two major wars within our generation has demonstrated conclusively that the solution of logistic problems cannot be left to the wartime improvisation.

In the belief that our defense war would require details of staff and plan an even greater strain on our resources than did World War II the Congress has repeated the lessons of that war into a new era, stating that it is "evidently clear that requirements for our national security are greater than ever, that the entire nation and its resources must be mobilized more ably."

It is the responsibility of the Navy Department to coordinate the logistic planning and control of the Navy, in the Organization of the Department, the Government, and the Nation, at the National level, the Navy Department level, and the Fleet level.

NATIONAL LEVEL

The National Security Act of 1947, as amended, provides for the establishment of a program for the National Security Council of the United States. The act also provides for the establishment of policies and procedures for the coordination of agencies and departments of the Government relative to the national security. It is the policy of the United States to establish certain departments and agencies within the Executive Branch to coordinate the performance of basic functions relating to the national security and provided for them by the Constitution and the President. Decisions and actions of these departments and agencies may directly affect



134.1

Figure 24-7.—The Naval Supply Depot at Pearl Harbor keeps an inventory of well over 200,000 items ready to serve the needs of the fleet.

the planning, programming, and budgeting for naval activities and operations, as may those of other Executive Branch departments and agencies performing functions relating to national security.

DOD LEVEL

The Secretary of Defense advises the President concerning the coordination of military, industrial, and civilian mobilization, including:

Policies concerning industrial and civil mobilization in order to assure the most effective mobilization and maximum utilization of the nation's manpower in the event of war;

Programs for the effective use in time of war of the nation's natural and industrial resources for military and civilian needs; for maintenance and stabilization of the civil economy in time of war, and for the adjustment of such economy to war needs and conditions.

Policies for unifying, in time of war, activities of Federal agencies and departments.

procurement, distribution or transportation of military or civilian supplies, materials and products;

The relationship between potential supplies of, and potential requirements for, manpower, resources, and productive facilities in time of war;

Policies for establishing adequate reserves of strategic and critical material, and for the conservation of these reserves;

The strategic location of industries, services, government, and economic activities, the continuous operation of which is essential to the nation's security.

The Joint Chiefs of Staff prepare strategic plans and joint logistic plans necessary to support their strategic plans.

The Assistant Secretary of Defense (Installations and Logistics), in support of strategic and logistic plans prepared by the Joint Chiefs of Staff, is charged with coordinating activities within the Department of Defense that relate to the military aspects of industrial mobilization.

The Defense Supply Agency (DSA), an agent of the Department of Defense, provides centralized management of most commodities and services for the military departments. Each service determines the kinds of supplies and equipment needed, and the quantity needed per operating unit. Defense supply centers (DSC's), which are field organizations of the DSA, then compute the replenishment requirements on all logistic items under DSA management. The DSC's control the wholesale distribution of stock among the services; they utilize the facilities, regardless of military department ownership, that are best suited to meet the requirements of the services and the areas served.

DEPARTMENT OF THE NAVY LEVEL

Logistics administration and control at the Navy Department level involves two distinct relationships: that of planning, forecasting, prescribing and distributing the requirements of

consumption, and that of developing, procuring and producing the material and personnel required to meet the needs of the operating forces—the logistics of production.

The line of demarcation between consumer and producer logistics cannot readily be fixed and defined; the two functions are interrelated and represent a continuous "cause and effect" relationship which cannot be served. The administration of the two functions, however, is divided to assure the best-qualified supervision of each function.

The determination of the "what, when, and where," that is, consumer logistics, is a military function and as such is assigned to the Chief of Naval Operations and his subordinate field commanders. The CNO expresses these material needs to the Chief of Naval Material. Producer logistics is a business function assigned for administration and execution to the various systems commands under the command of the Chief of Naval Material.

FIELD LEVEL

Logistics on the field level is primarily concerned with determination of requirements for normal maintenance of the fleet and bases and for special operations, and with the orderly and timely distribution of materials to fulfill these requirements. There are several echelons on the field level, beginning with the area commander and including transportation and supply activities throughout the United States and in the forward areas. In addition to the normal logistic administration, each tactical operation requires the provision of special personnel and material at exact times and places. A major portion of the detailed planning for each operation is done on the field level as are all actual assembly and transportation of men and material.

The area commander must analyze the strategic, tactical, and logistic plans of the Defense Department and advise his superiors of the logistic resources allocated to him. He must match up what he is told to do with the tools that he is given to work with and organize his

operations so that everyone concerned not only has the proper implements available, but also is assured of replenishment and replacement at the proper time and at the proper place. Consideration must be given to supply, transportation, repair, and maintenance of ships and equipment, medical attention, and all of the

other elements that are required to enable men to fight. Fuel oil, beans, and bullets must be constantly available to those who need them. mail should be delivered as often as possible; and provision should be made for assisting damaged ships. All those and other logistic matters comprise the logistic plan.

CHAPTER 25

NAVAL TELECOMMUNICATIONS

Communications is the vital key to command. It involves the transmission and reception of military instructions and information; it is at once the voice of command and the arm of control. Without it, coordinated action would be impossible. Without the ability to communicate, there could be no purposeful, cooperative effort by our ships and aircraft. Without a master plan, the details of which must be sent to fighting units, modern naval operations cannot be executed. Communications makes it possible for the most experienced aids, at the highest echelons of command and at the scenes of action, to evaluate missions, objectives, and enemy capability, and to determine appropriate courses of action.

In the modern missile age, it is a foregone conclusion that a future war would not allow a lull of grace during which to procure vast amounts of equipment and to train thousands of personnel. Naval telecommunications, being the function of command, must always be in a condition of preparedness. In the event of hostilities, the operating forces would depend on communication facilities in existence at the time.

A navy that operates on a worldwide scale hires the services of a global communication network. A commander must be able to pass the word to communicate whenever necessary, in any mode, between and among ships separated by varying distances, and from ships to and from shore stations and aircraft. The ability to communicate makes possible effective command and control, thus ensuring that every mobile element in the fleet is responsive to the tactical and strategic needs and services of every element. A force of ships in movement, if

touch with its base of operations because it is supported by a global organization of communication stations with hundreds of radio and landline circuits. Orders and information affecting the successful outcome of the force's mission are exchanged swiftly and accurately throughout every level of command. The direct result of reliable communications is a tightly directed fighting unit.

The mission of naval telecommunications—the voice of command—is to provide and maintain reliable, secure, and rapid communications, based on war requirements adequate to meet the needs of naval command; to facilitate administration, and to satisfy, as directed, JCS-approved joint requirements. Reliability is always paramount; it must never be sacrificed to achieve security or speed. When there is a conflict between the demands of security and speed, however, one or the other must be sacrificed in the light of the demands of the situation.

Very little has been said about the role of naval telecommunications in the Navy's impressive war record. Two reasons for this silence were military security and the close integration of communications with operations, which made it difficult to discern the heavy reliance on communications.

Commencing in 1939, naval telecommunications developed its facilities so extensively that at the peak of World War II it had established one of the largest and most efficient communication systems in the world. It made possible joint operations among the Army, Navy, and Air Force; and it brought together nations that did not speak the same language.

Naval telecommunications also performed collateral duties. In time of war, letters from home are almost as important to military personnel as ammunition and food. During World War II, the Naval Communications Service was responsible for all United States mail for the naval service and established more than 5,000 Navy post offices ashore and afloat, manned by 20,000 personnel.

Press and radio facilities provided by the Navy and the other services gave the public grandstand seats for the best news coverage of any war. Correspondents from news associations and broadcasting companies, as well as newspapermen and magazine publishers, accompanied task forces in every campaign. They were provided with complete broadcasting opportunities and radioteletypewriter service sufficient to transmit large volumes of news to the homefront. Occasionally they were offered radiophoto transmitting service.

Post-World War II developments in naval telecommunications have kept pace with increasing demands for reliability, speed, accuracy, and versatility imposed by the advent of nuclear weapons, high-performance aircraft, ballistic missiles, and nuclear propulsion. Improvements are being made continuously in the field of manmade satellites for the purpose of communication relay. One of the first big dividends from the U.S. space effort is in satellite communications. In general, the Navy's role in this program has been as a participant in joint projects, but the future for Navy satellite communications appears promising.

ELEMENTS OF NAVAL TELECOMMUNICATIONS

The term "naval telecommunications" is comprehensive and denotes the whole of the communication effort within the Department of the Navy. Naval telecommunications refers to the concept of communicating, rather than to any formally constituted organization. The main function of naval telecommunications is to meet the communication needs of the Operating Forces. The secondary function is to facilitate administration of the naval establishment. These

functions include the related processes of encrypting, decrypting, routing, reproducing, distributing, and recordkeeping. In addition, there are several subordinate functions, such as the operation of the Communications Material Security (CMS) System and special communication tasks or experimental assignments as directed.

The Commander, Naval Telecommunications Command, exercises operational direction of the Naval Telecommunications System as a servicewide system; serves as the operational and maintenance manager of the Defense Communications System assigned to the Navy; and acts as central coordinator for the CNO in carrying out Department of the Navy responsibilities for telecommunications as assigned.

The command coordinates activities and functions of a number of operating elements that collectively comprise the Naval Telecommunications System. These include, but are not limited to, communication stations and units, radio stations, and the communication organizations of naval shore activities and forces afloat.

A naval telecommunication station consists of communication facilities and ancillary equipment required to provide the essential fleet support and fixed communication services for a specific area. A communication unit is assigned a limited or specialized functional mission and consequently is smaller in terms of personnel and facilities than the communication station. Naval telecommunication stations and units normally are the points where message traffic is transferred between Navy operational circuits and Defense Communications System circuits.

A naval radio station, generally a remote component of a communication station, performs either radio transmitting or radio receiving functions. The designation letter T or R is added in parentheses to the activity (e.g., NAVRADSTA(T), Lualualei, Oahu) to indicate the function performed.

The organization of a shore activity usually provides for a communication department that maintains and operates communication facilities mainly to afford local communications as

necessary for accomplishing the activity's assigned mission. It also may provide general communications in furtherance of the worldwide functions of the Naval Telecommunications System. Where radio transmitting and receiving facilities are required, it is the policy to install the equipments in regularly established transmitter or receiver locations and remotely control these facilities from the communication center of the activity concerned.

At the level of the Operating Forces, communications is the voice of command in a visible and tangible way. The communication organization aboard ship is under the direct and positive control of the commanding officer. Often, the communications provided influence directly and materially the degree of success achieved by the combat unit. In the transmission and reception of signals and messages, the communication organization participates in the exercise of command. Although COMNAVTELECOMM provides technical communication guidance and direction to the Operating Forces, with primary emphasis directed toward overall operating efficiency, yet commanders-in-chief retain authoritative direction and control of ship-shore, ship-ship, air-ground, and other designated tactical communication functions.

DEFENSE COMMUNICATIONS SYSTEM

A need for coordinated and standardized communications among U.S. military services is clearly apparent during World War II. Because Army and Navy facilities sometimes are duplicated in one location, differences in procedures made for inefficient interservice communications. Since 1961, communication procedures (other than for tactical communications) have been standardized throughout the Department of Defense by means of the Defense Communications System (DCS).

The DCS, as part of the overall National Communications System, comprises the major portions of the individual Army, Navy, and Air

Force long-haul point-to-point/store-and-forward communication complexes to provide a single system that is responsive to the Department of Defense worldwide communication needs. The military departments maintain and operate their assigned portions of the DCS, but are responsive to the overall operational direction and supervision of the Defense Communications Agency (DCA), which is the management agency for the DCS. The DCA is under the direction, authority, and control of the Secretary of Defense.

All DCS facilities operated by the Navy are ashore. Most message traffic flowing between ships and shore commands is routed over DCS circuits at some point between originator(s) and addressee(s). Because a DCS relay station serves a geographical area rather than a particular service, each station is equipped to relay messages for all military services within its area.

With certain exceptions, the DCS includes all Department of Defense circuits, terminals, control facilities, and tributaries, regardless of the military department to which they are assigned. Of particular significance to the Navy, the DCS normally does not include land, ship, and airborne communication facilities of broadcast, ship-to-shore, ship-to-ship, and ground-air-ground systems. Tactical circuits within a tactical organization are excluded from the DCS.

Operational control and supervision of the DCS is accomplished through a complex of communication control centers. The functions and tasks associated with the control centers are to tabulate, assemble, store, and display information on current conditions of the components of the system, allocate channels and circuits to meet requirements of authorized users, and perform continuous system analysis and such other tasks as are necessary. The principal objective of the control center system is to assure the greatest possible responsiveness of the DCS to the needs of its users.

Communication control centers receive and process performance data based on hourly and spot reports made by the various DCS reporting stations on networks, circuits, channels, and facilities of the DCS. These reports provide a

knowledge of the status of the DCS at all times. The control centers know of traffic backlogs, if any; conditions of circuits; status of installed equipment at switching centers throughout the world; and the status of channels allocated to users. With this knowledge and that of alternate route capabilities between any two points, spare capacity, and radio propagation conditions, the control centers restore elements and reallocate channels according to needs and priorities of users.

The heart of the communication control center complex is the Defense Communications Agency Operations Center (DCAOC), located in the Washington, D.C., area. Within this complex, status information is maintained on major trunking and vital circuits throughout the world. Coordination of restoral actions is effected by direct critical control circuits with DCA field elements.

Subordinate to the DCAOC are four Defense Area Communications Operations Centers (DACOCs) in Hawaii, Germany, Alaska, and Colorado that exercise operational direction and supervision of DCS components in their geographical areas in the same manner that the DCAOC covers the entire world. Under the DACOCs are a number of Regional Communications Operations Centers (RCOCs) to provide control facilities that permit the DCS in the region to be responsive to the changing needs of area commanders.

DCS AUTOVON

The DCS automatic voice network (AUTOVON) offers rapid, direct interconnection of Department of Defense and certain other Government installations. AUTOVON is intended to be a single, worldwide, general-purpose, direct-dialing system. Its goal is to complete connections between two points, anywhere in the world, in about 2 seconds, and to complete regular connections with pushbutton speed.

The AUTOVON system is comprised of several installations comparable in function to commercial telephone exchanges. An installation is referred to as an AUTOVON switch, or simply switch. Within individual areas are local

command, control, and administrative voice communication systems. The systems can be connected into the worldwide AUTOVON through manually operated telephone switchboards, or automatic dial exchanges, by provision of direct in or out dialing capabilities.

Normal AUTOVON service makes it possible for subscribing stations to call other stations on a worldwide basis for day-to-day nonpreemptive traffic. Depending on the type of service available in each locality, AUTOVON calls may be accomplished either by direct dialing or through a local operator. Where users require priority calls to be made, they place the call with their local operator or the AUTOVON dial service assistance operator.

DCS AUTODIN

The DCS automatic digital network (AUTODIN) is a fully automatic digital data switching system capable of handling any type of information in digital form. The system consists of high-speed, electronic, solid-state switching centers, various types of data and teletype subscriber terminals, and interconnecting transmission media.

AUTODIN is intended to afford instantaneous, error-free, and secure communications around the world to several thousand directly connected subscriber terminals. Daily capacity of the system is in the neighborhood of 5 million average-length messages.

Interconnection of AUTODIN switching centers is accomplished through a network of high-frequency radio channels, submarine cables, microwave and tropospheric channels, and a variety of wire lines. These transmission media are available from existing DCS transmission resources, AUTOVON, and from commercial communication facilities.

Backbone of the AUTODIN system is the automatic switching center (ASC). Basic functions of the ASC are to accept, store, and retransmit digital messages from one location to another, automatically detect and correct errors and accomplish alternate routing. Each switching center has a high degree of reliability resulting from duplicate major units which can

be activated with a minimum of disrupted service. The current status of an ASC can be checked at any moment by obtaining a printout of exactly how many messages, by precedence (required speed of transmission) and destination, are in the center.

Each overseas ASC is capable of recognizing and routing 3300 single routing indicators (groups of letters that identify stations in a teletypewriter relay network), 200 collective (encompassing more than one addressee) routine indicators, and routing indicators for 300 other switching centers.

The whole concept of AUTODIN is to reduce manual handling of messages to a minimum by the use of automated equipment to reduce message delivery times and delay anywhere in the world to a matter of seconds (essence, real-time) rather than in minutes or hours.

METHODS OF COMMUNICATING

Highly classified material that requires continuous protection by a military agency during its transmission normally is sent via the Armed Forces Courier Service (ARFOSC). It is a joint organization which is managed and operated by the Army, Navy, and Air Force to provide classified messenger services to authorized users. By the combination of the facilities of a network of some 600 airmail transfer stations, and the State Department Diplomatic Pouch Service, ARFOSC material can be transmitted to any country in the world with which the United States maintains diplomatic relations.

This section discusses communicating via telecommunication method. The term "telecommunications" embraces all transmission, emission, or reception of signals, writing, images, and sound of intelligence of any nature by visual or other means, or by wire, radio, or other electromagnetic systems. Telecommunications used in the Navy are of three types: electrical, visual, and sound.

ELECTRICAL

The electrical method of communication is made by the use of electric energy in the form of a wave. The wave is a disturbance in the electric field that travels through space and is not guided by a physical medium. It is a transverse wave, which means that the electric field is perpendicular to the direction of travel. The wave is made up of many small disturbances, each of which is a single cycle of the wave. The frequency of the wave is the number of cycles per second. The wavelength is the distance between two consecutive cycles. The amplitude is the height of the wave. The electrical method of communication is used for many purposes, including radio, television, and telephone.

Radio is the most common method of electrical communication. It uses radio waves to transmit information. Radio waves are electromagnetic waves that travel through space. They are made up of many small disturbances, each of which is a single cycle of the wave. The frequency of the wave is the number of cycles per second. The wavelength is the distance between two consecutive cycles. The amplitude is the height of the wave. Radio waves are used for many purposes, including radio, television, and telephone.

Radio-telephone (R-T)

Radio-telephone (R-T) is a method of communication that uses radio waves to transmit voice. It is a type of radio communication. Radio-telephone is used for many purposes, including radio, television, and telephone. Radio-telephone is a type of radio communication. Radio-telephone is used for many purposes, including radio, television, and telephone. Radio-telephone is a type of radio communication. Radio-telephone is used for many purposes, including radio, television, and telephone.

Teletype

Teletype is a method of communication that uses electrical signals to transmit text. It is a type of telecommunication. Teletype is used for many purposes, including radio, television, and telephone. Teletype is a type of telecommunication. Teletype is used for many purposes, including radio, television, and telephone. Teletype is a type of telecommunication. Teletype is used for many purposes, including radio, television, and telephone.

Teletype signals may be sent either by landline (wire) or by radio. Teletype communications is used both by the military services and by commercial communication companies such as Western Union.

Today the primary shipboard use of radioteletype (RATT) is for receiving fleet broadcast schedules, for which it is well suited. RATT can clear traffic on many channels at a rate of 100 wpm (words per minute). Because a shipboard operator is freed from manual copying, and hundreds of ships may be receiving a single broadcast, the total saving in trained manpower is great.

Facsimile

Facsimile (FAX) is the process used to transmit photographs, charts, and other graphic information electronically. The image to be transmitted is scanned by a photoelectric cell, and electrical variations in the cell output, corresponding to the light and dark areas being scanned, are transmitted to the receiver. At the receiver, the signal operates a recorder that reproduces the picture. The FAX signals may be transmitted either by landline or by radio.

FAX transmissions suffer distortion from all the common sources of interference experienced with ordinary radiotelegraph and radioteletypewriter transmissions. However, certain characteristics of FAX transmission make it less susceptible to complete loss of intelligence. For example, a picture will be degraded by any noise bursts since FAX recording is a continuous recording of signals emanating from a receiver. However, because the machine scans material at the rate of approximately 100 lines per inch, noise burst or interference distorts a line only 1/100th of an inch wide through a character, leaving it still readable, whereas conventional circuits would miss the character entirely.

FAX transmission is not intended to be a replacement for teletypewriter and other generally employed methods of transmission; rather, it is an important supplement to rapid communication, providing a means of handling certain types of graphic and pictorial intelligence by rapid communication methods.

Fleet Broadcasts

There are three ways in which radio traffic is sent to the fleet: broadcast, intercept, and receipt. The first two are "do not answer" methods, while the third, as its names implies, requires a receipt from the addressee (addree) for each message. Broadcast and intercept methods allow the fleet to preserve radio silence, which is a great advantage from the standpoint of security. By the intercept method, a shore radio station transmits messages to another shore station which repeats them back. Ships intercept and copy all traffic. Broadcast is preferable to intercept chiefly because it is faster. It is the method by which nearly all fleet traffic is handled, and it utilizes all three systems of radio communication: radiotelephone, radioteletypewriter, and facsimile.

There is some similarity between civilian and naval broadcasts. Just as commercial stations in the broadcast band transmit programs to radio receivers in the homes in their communities, Navy communication stations broadcast messages to fleet units in their particular geographic areas. The term "broadcast," in fact, originated in naval communications.

The resemblance between Navy and commercial stations ceases here, however. Information broadcast by naval telecommunication stations is contained in chronologically numbered messages addressed to the ships. The messages are copied by the fleet units, which check the serial numbers to ensure that they have a complete file.

Fleet broadcasts follow regular schedules. Messages are placed on the schedules in order of precedence. If a message of higher precedence is given to a transmitter station while a lower-precedence message is being transmitted, the latter message may be interrupted to transmit the message of higher precedence.

All ships copy all messages appearing on the broadcast schedule which they are guarding.

To ensure reception of these very important broadcasts, they normally are transmitted on several frequencies to allow a choice for best reception, considering the time of day or night and the atmospheric conditions.

Satellite Communications

Satellite communications are receiving a great deal of attention in the national space effort. This particular area of space technology holds much promise for both commercial and military users. At least a dozen communication satellite projects are in various stages of development at present—all making use of different potential advantages which this new field offers. All three military departments, the Defense Communications Agency, the National Aeronautics and Space Administration (NASA), and private industry are busily engaged in developing satellite technology under a broadly coordinated effort.

The Naval Electronic Systems Command manages the development of the Navy's satellite communication program.

Communication satellites are of two types—passive and active.

A passive satellite is an orbiting object capable of reflecting a transmitted signal back to earth. It contains no energized electronic circuitry of its own. The Navy has developed the communications Moon relay (CMR) system using the passive reflection method for communications between Washington, D.C., and Pearl Harbor.

The totality of the satellite need not be an broken surface; dispersed metallic particles may be used as reflectors. If these particles are the proper length, they become resonant to a particular frequency and reradiate any signals on that frequency. A disadvantage of the passive satellite is that effective communications using a satellite as a reflecting medium require large, sophisticated antennas and fairly high-powered transmitters.

An active satellite contains electronic drivers, power sources, amplifiers, and transmitters that receive an incoming transmission, amplify it, and retransmit it to other ground stations. Because the active satellite boosts the energy level of a relayed signal, it performs a function similar to a relay station on the ground. For this reason, ground transmitters need less power and smaller antennas as compared to the requirements of a passive satellite. This is an advantage to a shipboard structure. Active satellites are the less

reliable of the two types because of the additional electronic circuitry and the need for additional equipment and maintenance.

Active satellites are divided into two categories—repeaters and store-and-forward repeaters. Information received by a store-and-forward satellite is stored in a memory device such as a tape recorder and later retransmitted either on demand or automatically according to a prearranged sequence. The delay in retransmission is at low altitudes when the satellite is out of the line of sight of the sending and receiving stations simultaneously. Active store-and-forward repeaters instantaneously retransmit signals.

The Fleet Satellite Communications Systems (FLETSATCOM) System is the Navy's first active satellite communications system. FLETSATCOM is a store-and-forward system, making possible communications between distant terminals and supporting the Navy's Fleet Satellite Communications System. Fleet Satcom will have a small aperture antenna which will reflect voice and data. The system is currently under development. It will consist of a fleet of low-cost satellites orbiting at an altitude of 1000 miles.

FLETSATCOM will be used to provide a means to cover the Atlantic Ocean. The system will be based upon the Navy's Fleet Satellite Communications System, which is currently under development. It will consist of a fleet of low-cost satellites orbiting at an altitude of 1000 miles.

The Navy's Fleet Satellite Communications System (FLETSATCOM) is a store-and-forward system, making possible communications between distant terminals and supporting the Navy's Fleet Satellite Communications System. Fleet Satcom will have a small aperture antenna which will reflect voice and data. The system is currently under development. It will consist of a fleet of low-cost satellites orbiting at an altitude of 1000 miles. The Navy's Fleet Satellite Communications System (FLETSATCOM) is a store-and-forward system, making possible communications between distant terminals and supporting the Navy's Fleet Satellite Communications System. Fleet Satcom will have a small aperture antenna which will reflect voice and data. The system is currently under development. It will consist of a fleet of low-cost satellites orbiting at an altitude of 1000 miles. The Navy's Fleet Satellite Communications System (FLETSATCOM) is a store-and-forward system, making possible communications between distant terminals and supporting the Navy's Fleet Satellite Communications System. Fleet Satcom will have a small aperture antenna which will reflect voice and data. The system is currently under development. It will consist of a fleet of low-cost satellites orbiting at an altitude of 1000 miles.

The Navy's Fleet Satellite Communications System (FLETSATCOM) is a store-and-forward system, making possible communications between distant terminals and supporting the Navy's Fleet Satellite Communications System. Fleet Satcom will have a small aperture antenna which will reflect voice and data. The system is currently under development. It will consist of a fleet of low-cost satellites orbiting at an altitude of 1000 miles.

fixed and mobile ground stations, aircraft, ships, and submarines.

VISUAL

Visual communications are generally the preferred means for communicating at short range, weather conditions permitting. In reliability and convenience, visual communications often are the equal of radio and under certain circumstances are more secure than radio. For example, omnidirectional radio transmissions may be intercepted by many undesired listeners, whereas unidirectional visual signals are limited to observers positioned along the line of sight.

Visual signaling systems include flaghoist, flashing light, and semaphore.

Flaghoist

Flaghoist signaling (figure 25-1) is the most rapid and accurate visual method when ships are within signaling distance in daytime. It normally is the primary tactical maneuvering method of transmission between surface units whenever visibility conditions permit. Signals are repeated by the addressee, thus providing a sure check on the accuracy of reception. Texts of messages which may be conveyed directly by flaghoist are limited by meanings contained in the signal books employed.

The Navy uses flaghoist signaling mainly to convey tactical and informational messages of reasonable length during daylight, between ships that are in close company. Flaghoist is considered one of the best ways to ensure uniform execution of maneuvers. In signaling by flaghoist the U.S. Navy and her allied navies use international alphabet flags, numeral pennants, four repeaters, a set of special meaning flags and pennants, and ten numeral flags that are not part of the international system. Each flag and pennant has a name, various flags have particular meanings, and almost all hoists are coded signals.

The flags of a hoist are always read from the top down. When more than one hoist is flying, they are read from outboard in, or from forward aft.

When a flaghoist is made and run all the way up on the halyard to the point where the top of the hoist hits the block through which the halyard runs, the hoist is said to be "close-up." If a hoist is run up only about two-thirds of the way, or is lowered to this position after having been close-up, the hoist is said to be "dipped" or "at the dip." When a hoist is lowered all the way, it is said to be "hailed down" or "executed." The moment of hauling down is the moment of execution of the signal unless otherwise indicated in the meaning of the hoist. Flag signals normally are answered, or receipted for, by addressees repeating the entire hoist at the dip when seen. Hoisting a flag signal close-up, when understood, constitutes an acknowledgement.

Flashing Light

Flashing light is a visual telegraphic system that uses visible or infrared light beams; it may be directional or nondirectional.

A directional flashing light is pointed and trained so as to be visible only by the addressee of the message. This method uses an installed signal searchlight with a light shutter which the operator opens and closes to form dots and dashes, or a portable light which is switched on and off to form the Morse code characters.

Nondirectional (omnidirectional) lights are located above the superstructure on the yardarm. Because the light beams are visible in every direction from the ship, this method of communicating is suitable for messages destined for several addressees.

In time of war, flashing light communications carried on after dark usually use infrared beams that are not visible unless viewed through a special receiver. As a general rule, infrared is the most secure means of visual communications. Directional infrared uses the standard signal searchlights fitted with special filters. For omnidirectional signaling, yardarms are fitted with infrared blinker lamps.

Semaphore

Semaphore is a communication medium by which a man signals with two hand flags, moving



Figure 25-1.—Flaghoist signaling provides a rapid and accurate system of passing tactical and administrative information during daylight.

134.111

his arms through various positions to represent letters, numerals, and special signs.

Semaphore and flashing light can be used interchangeably for many purposes, but semaphore is more rapid for short-distance transmission in clear daylight and may be used to send messages to several addressees at once if they are in suitable positions. Because of its speed, semaphore is better adapted to the sending of long messages than are other visual methods. When radio silence is imposed, semaphore is the best substitute for handling administrative traffic. It is more secure than a light or radio because there is less chance for interception by unauthorized persons.

SOUND

Sound communication systems include whistles, sirens, bells, and acoustics. The first three are used by ships for transmitting emergency warning signals (such as air raid alerts), navigational signals prescribed by the rules of the road, and in wartime, communications between ships in convoy.

Provision is made in many search sonar (underwater sound) equipments to permit their use for C'W transmission. The term "acoustic communications," however, usually pertains to an underwater sonar communication equipment called Sea Talk. Sea Talk (frequently referred to as Gertrude) may be used for either radiotelephone or C'W communications. The range of transmission varies with the condition of the sea and the relative noise output of the ship. Under the most favorable conditions, communications may take place between ships at ranges in the vicinity of 12,000 yards.

PYROTECHNICS

Pyrotechnics for signaling are, for the most part, of the "fireworks" variety. Common sources are Very pistol flares, colored shell bursts (parachute flares), aircraft parachute flares, Roman candles, and float-type flares. The meaning of a pyrotechnic signal depends on the color instead of the type of pyrotechnic employed. The authorized use of pyrotechnics for communications is, in general, limited to emergency signals.

SHIPBOARD COMMUNICATION ORGANIZATION

A ship's communication organization is responsible for the operation of all external communication facilities. The operation of such facilities must comply with the general communication instructions issued by CNO and with specific instructions issued by responsible senior officers.

The shipboard communication organization also has cognizance of the operation of naval telecommunication systems employed by commercial users, such as press messages and private commercial messages between ships or ship and shore, as authorized by law where commercial stations are not available to meet the normal communication requirements. It does not have cognizance of the ship's internal communications.

PERSONNEL

Most of the following officer billets, although separated by function, apply on board a small ship to one man—the communications officer.

Communications Officer

The ship's communication officer is responsible for the organization, supervision, and coordination of the ship's exterior communications; the operation, care, and maintenance of all communication equipment not otherwise assigned; and the procurement, custody, distribution, physical security, correction, and reporting of all classified registered publications and devices issued to the ship and of all other classified material assigned to him.

The communications officer is responsible for the routing, filing, and physical security of all messages handled by the ship, ensuring that messages are delivered promptly to the proper persons. He maintains message files and records, disposing of obsolete files in accordance with disposal instructions. He is in charge of all personnel assigned to radio and visual communications.

h respect to duties involving equipment, communications officer is responsible for cleanliness and preventive maintenance of all electronic, cryptographic, and visual signaling equipment and for the compartments and deck occupied by such equipment.

and Officers

radio and signal officers are assistant communications officers in charge of radio and visual communications. Each is charged with the operation and maintenance of assigned equipment. Their duty is to ensure reliable, secure, and rapid transmission of radio and visual communications. In addition, the radio officer must know the ship's communication plan, understand communication characteristics, and be familiar with the capabilities, and limitations of the ship's radio equipment, including antennas.

Communications Material Custodian

Communications Material Security provides distribution of and strict accountability for certain publications by registered numbers. Special safeguards against loss or compromise include a system of continuous accountability, periodic inventories, and strict handling procedures.

CMS custodian is responsible to the commanding officer for keeping a complete, accurate, and correct allowance of registered communications issued to the ship. Under the direction of the communications officer, the duties of the custodian extend to the drawing, storage, correction, destruction, submission of reports, and issuance of all registered communications.

Communications Watch (CWO)

On large ships, junior officers may be assigned specifically to the operations communications element (on some ships, to the

communications department) for watchstanding duty or training in communications. In smaller ships, CWO duties are performed by the communications officer and his assistants.

While on watch, the CWO is in active and immediate charge of the ship's communications. He is responsible for incoming and outgoing traffic as provided for in the ship's communication organization, ensuring that messages sent and received are in correct form and are handled promptly and efficiently. During the period of his watch, he is responsible for the proper operation of the cryptocenter.

Cryptoboard Members

Cryptographers collectively called the cryptoboard are designated by the commanding officer to assist the CWO in the encryption and decryption of messages when the traffic load warrants. Cryptoboard members may be commissioned officers, warrant officers, and trustworthy and reliable enlisted personnel.

Each commanding officer appoints an assistant communications officer for cryptosecurity who serves as advisor to the CO in all matters relating to cryptosecurity and the physical security of cryptomaterials. The officer so appointed is responsible to the communications officer for the accurate, secure, and efficient operation of the cryptocenter.

COMMUNICATION SPACES

The communication center, or message center, of a ship is the central agency for the handling of all rapid communications, except tactical signals received and sent direct from shipboard control stations. It is usually located adjacent to the main radio station (Radio 1) and the cryptocenter. Outgoing messages are delivered to the communication office where they are prepared for transmission. The necessary release is obtained by enlisted or officer messengers as appropriate, and when the message is ready, it is passed to Radio 1 or the signal bridge for transmission. Incoming messages are delivered immediately to the

communication office for internal routing and eventual filing.

The cryptocenter is an office space that usually opens into the communication office. It is equipped with cryptoaids; a safe for stowage of codes, ciphers, and publications not actually in use; file cabinets for stowage of Confidential and Secret message files; and desks with typewriters for use as required. Access to the cryptocenter is permitted only to assigned personnel, and the cryptocenter is kept locked when not manned.

Most ships are fitted with several radio rooms. Radio 1, or main radio, is the primary receiving station. Most of the ship's receiving equipment is located there, and each receiving position has a key for remote control of the transmitters, which are located in other parts of the ship.

On small ships, Radio 2 contains the majority of the ship's transmitting equipment. Large ships have several transmitter spaces. The watch usually consists of a petty officer in charge, assisted by one or more strikers. The watch keeps transmitters tuned to prescribed frequencies and connected to the desired keys in radio 1 or in other parts of the ship. Frequency measuring equipment is provided to permit accurate tuning.

Emergency radio spaces, isolated from other radio rooms, contain several transmitters and receivers for emergency use, and are provided with an independent power source for use in case of failure of normal ship's power. Usually, a watch is maintained in emergency radio only during general quarters.

Remote-control transmitting and receiving positions are located in various parts of the ship, such as the bridge or conning tower, the flag bridge, and the combat information center. Receivers and transmitters throughout the ship may be connected to these remote-control positions as desired.

The signal bridge, located in the vicinity of the navigation bridge, is the station from which all visual messages are handled by flaghoist, flashing light, and semaphore. The signal bridge is manned continuously; the watch varies in size and composition, depending upon operating conditions. Visual messages not of a tactical nature are normally cleared through the

communication office, except incoming messages of immediate importance which are first delivered directly to the captain and officer of the deck. Similarly, outgoing traffic of immediate importance may be sent out directly from the signal bridge as ordered by the captain or officer of the deck or by any other officer authorized by the commanding officer to release messages.

COMMUNICATION PUBLICATIONS

Allied communication publications (ACPs) are part of the Naval Warfare Publications Library (NWPL). The publications in the ACP series contain the rules and regulations governing the use of communications among Allied forces and also list the many call signs, address groups, etc., necessary for efficient and secure communications. These books are prepared by the combined Canada and United Kingdom Joint Communication-Electronics Committees and the United States Military Communications Electronics Board for use by CAN-UK-US, NATO, SEATO, and individual Allied nations to which they are released.

Publications in the Communications Material Security System are sent from CMS headquarters at the Naval Security Group Command Headquarters, Washington, D.C., to the Communications Material Issuing Offices (CMIOs) throughout the world. From the CMIOs they are issued to the ships and shore stations within the area served by each issuing office.

The publications that govern communications among the United States services are the Joint Army-Navy-Air Force publications (JANAPs). They are similar to ACPs, but are used only among the United States services. In many cases, publications originally issued as JANAPs have been accepted for use by other Allied nations and reissued as ACPs.

Communication information that applies only to the U.S. Navy is promulgated by the Commander of Naval Telecommunications in the form of naval telecommunication publications (NTPs).

CHAPTER 26

SECURITY

word security, like many other words, has several meanings. As used in this chapter, however, it has only one meaning: safeguarding classified material. The term classified material, as herein, also has limited and definite meaning. It means facts and data that require protection in the interest of national defense; it includes documents, apparatus, and machinery. There have been instances in which a potential enemy has obtained valuable information simply because those involved did not fully understand and appreciate what constitutes information of value to a foreign power.

Modern methods of conducting war require the collection of a tremendous amount of information. It is stored away in books. It accumulates in files. It is gathered by intelligence activities. It is transferred in letters and messages. And it is stored and organized in the minds of men who are fighting the war. Diaries and snapshots kept by tourists as souvenirs of a carefree trip in foreign lands years can produce information that is highly valuable to their government's intelligence agencies in war. Even the information available in a public library becomes valuable if the enemy has discovered what information the Army, Navy, and Air Force are using. An account of tides and weather in a particular location might provide a valuable hint of the enemy's operations even though it had no direct bearing whatever to do with actual combat.

The aim of warfare is to concentrate a superior force at the right place and at the right time. Before this can be done, however, the information necessary to organize and assemble the force, to pick the right place, and to pick the right time must be concentrated in a few hands. There are few instances in the

history of successful engagements where the victor did not obtain in advance the necessary information on which to base his decision. Conversely, disastrous defeats often can be attributed directly to lack of information about the enemy or the incorrect interpretation of the information available.

The element of surprise often is an advantageous factor in attaining a goal in warfare. For that reason, information must be protected, every hint of the plans kept secret, and each decision concealed from all except those who need to know.

Following a war, there is likely to be a dangerous lowering of security barriers. That the Russians and the Nazis well knew the value of security in peacetime is demonstrated by the extreme national secrecy they observed prior to World War II, knowing that it was the only sure countermeasure against mass espionage. Before the German invasion, the Russians successfully prevented the leakage of accurate information regarding their strength and preparedness. As a result, their ability to withstand invasion was wholly underestimated by the Nazis.

No accurate news regarding the progress of German rearmament was permitted to leak out of that country. The silence imposed was not limited to the armed forces, but was extended to all factories working for national defense, with harsh penalties for those who violated secrecy. In those countries where invasion was almost immediately successful, a part of the invaders' triumph was due to the information available to them in advance, as well as to the failure of the victims to take preventive action against espionage.

Developments in this respect in World War II point out a truth that must never be overlooked: to ensure our national security, all who possess classified information must constantly be aware of the need for safeguarding that material.

ENEMY ESPIONAGE

Most nations, even in peacetime, maintain espionage organizations of varying size and scope for the purpose of ferreting out information regarding potential enemies. The activities of these organizations have always been among the greatest hazards to security.

Espionage is no longer an undertaking by a relatively few isolated spies attempting to obtain military or naval information from high-ranking officers. It is a mass effort, carried out in all fields, political and cultural, as well as military, by thousands of unimportant people in minor positions. They depend on statistical methods and the slow accumulation of bits of information until the aggregate tells a story. A single hint dropped unconsciously may prove to be an important piece in the jigsaw puzzle the enemy is putting together.

The agents of enemy espionage are in large part sympathetic with enemy aims, even though in some cases they have been coerced into service through threats. During a war, their purpose is to obtain and report as much valuable information as possible and to assist the enemy by spreading fake reports, committing sabotage, directing invading forces, crippling key industries and utilities, seizing communication centers, and generally cracking defense and undermining morale. To say that they represent, even in peacetime, a serious threat to a nation's security is not an exaggeration.

DATA DESIRED BY THE ENEMY

It may be well to set forth some definite examples of the type and kind of material that a potential enemy expects his agents to obtain. Obviously, information about convoys, nuclear weapons, and supersonic aircraft should not be disclosed; most people grasp the significance of

such data to a potential enemy. But what many do not realize is that the enemy is interested in obtaining data which, to the average person, appears to be general and harmless information. Some understanding of the scope of the enemy's interest may be gained from the following questions (taken from official files), the answers to which enemy agents operating in this country during World War II were instructed to obtain.

What is the situation with respect to manufacture of steel plates covered with rubber manufactured by the U.S. Rubber Company? How many sheets of steel and how many sheets of rubber do the plates contain? What is the total thickness of the plates? Is the exterior sheet rubber or is it steel?

What is the daily production of munitions by the Bethlehem Steel Corporation?

What foodstuffs, raw material, and machines are being sent to England?

What manufacturing plants are operating branches in Canada, Australia, and New Zealand?

How many American pilots are being turned out monthly?

What products does the Sperry Rand Corporation manufacture in its new plant at Salt Lake City, Utah?

The answers to all of these questions could be easily brought out in the course of a friendly conversation. The following incident which occurred during World War II demonstrates how easy it is for unthinking persons to disseminate vital information:

A public utility company of an eastern state, apparently motivated only by a desire to gain public goodwill by advertising its war effort, proposed to release some advertising in which was recorded the fact that the company had done much work in connection with the plant expansion of a certain aircraft factory. More specifically, it was pointed out that a new electric substation had been constructed at a certain point, in order to give the company additional electrical facilities. No imagination is required to appreciate the usefulness of this bit

information to an enemy saboteur. In this particular instance the firm deleted the information when its significance was brought to attention by the Navy Department.

There is another set of questions that an enemy agent was undertaking to answer during World War II: What new war material factories were being constructed? Where are these plants? When will they begin to function or deliveries?

One of these specific inquiries is the subject of a United Press war release by a writer who had escaped from occupied territory. In his story the writer recalls his astonishment at an incident that took place on a train on which he was a passenger.

"Coming into Detroit from the West," he writes, "a group of us who were chatting were surprised when one passenger called out, 'Look! That big new bomber plant!' A state highway was running near this gigantic midwestern bomber plant had been blocked and detoured. The helpful passenger made sure that all of the passengers got the only close-up from the train, which was closer to the plant than any public road." The locations of large amounts of military supplies are always matters of interest to enemy agents. The following quotation, drawn from the same source as the incident related above, illustrates how thoughtless conversation can give an enemy agent just the information he has been assigned to gather:

"Coming from Cincinnati to Cleveland, I was carrying a book when the porter said to me, 'Look at those flatcars loaded with Army stuff!' Looking quickly between the boxcars on the other side as we were passing, I could see a long row of flatcars standing on a more remote siding. A German saboteur probably would have missed them because of the boxcars, but I didn't have a helpful porter."

Obviously, the Navy is a potential source of information, and unceasing, systematic efforts to exploit that source are to be maintained. The methods that may be used are varied and varied: planting agents within the establishment, photographing or stealing documents, tapping telephones and radio lines, attacking codes and ciphers, and so on. Naval radio personnel when off duty,

Although bits of information obtained through these means often appear innocuous, they prove to be of real value when subjected to expert, purposeful analysis and combined with other fragments of information from various sources. The necessity for unceasing vigilance and maximum preventive measures on the part of all naval personnel cannot be too strongly stressed.

Security is a means, not an end. Rules that govern security of information are analogous to gunnery safety orders. They do not guarantee protection, and they do not attempt to meet every conceivable situation. The law of diminishing returns limits the control measures that can be employed profitably, but it is possible to obtain a satisfactory degree of secrecy with a minimum of sacrifice.

Security of information is achieved by a variety of practices, precautions, and safeguards which include suitable defensive measures against the following:

1. Capture or salvage of lost or discarded material.
2. Theft, espionage, infiltration, and photography.
3. Interception of communications.
4. Radio direction, tracking, and interception.
5. Traffic analysis.
6. Cryptanalysis.
7. Spies and informants.
8. Sabotage, impersonation, and other falsification of communication.
9. Carelessness and lack of vigilance.

PROOF OF ENEMY SUCCESS

The following are some of the most important official records of World War II. In each instance it is impossible to deny that the enemy acquired his information about the situation without doubt that much of it was obtained from persons who had no intention of helping the enemy.

Case 1. A submarine attack on convoys concentrated its target on the two ships in the center. These ships had been moved to their central position in order that they could be afforded maximum protection. The enemy unquestionably knew that these two particular vessels were carrying cargoes of special military importance.

Case 2. Documents captured on Saipan disclosed that the enemy in the Pacific had assembled very complete and extensive information about the strength and organization of both Army and Navy air forces. The scope of this information indicated that it had been painstakingly assembled from a variety of sources.

Case 3. The captain of a fast cargo ship in the Pacific had thought it safe, though contrary to regulations, to cable his sailing date in code to this country. The date was not kept secret, for the ship was torpedoed and the captain was lost, probably not suspecting that it was because of his own carelessness.

Case 4. Several days before the forces that were to land at Salerno departed from Oran, personnel not closely associated with the joint planning staff betrayed an accurate knowledge of the time and place of the landing. Even before the operation plans were received, the executive officer of an IST noticed that the Gulf of Salerno had been marked with a heavy pencil on a chart in the ship's radio room. On being questioned, the Radioman volunteered the statement that the information had been imparted to him by another bluejacket attached to the Seabees. It may not have been difficult for the enemy to deduce the destination, and these incidents do not prove that security broke down, but it is a fact that the Fifth Army collided head-on with strong German armored elements deployed along the selected landing beaches. Whether the enemy benefited or not, it is obvious that too many persons knew too much too soon.

While the cases just described cover wartime situations, the principles apply during peacetime as well. There may be considerable relaxing of overall security for economic reasons, reduction in personnel, and for general peacetime convenience. It is essential, however, that all current security directives be applied strictly and conscientiously.

Potential enemies are unceasingly gathering information through their organized systems of espionage. Alertness to this situation is always necessary.

SECURITY CONTROL AND RESPONSIBILITY

The Chief of Naval Operations (CNO) is responsible to the Secretary of the Navy (SECNAV) for all policies relating to the maintenance of the security of all classified information within the Department of the Navy. The Director of Naval Intelligence (DNI) has been designated as the officer primarily responsible to the CNO for the protection of classified information. Commanding officers are directly responsible for safeguarding all classified information within their commands and are responsible for instructing their personnel in security practices and procedures.

In order to provide for the proper indoctrination of all personnel charged with responsibility for safeguarding classified matter, instructions that are necessary for the proper administration of the security system are issued by the Chief of Naval Operations. Current instructions are contained in the Department of the Navy Information Security Program Regulation (OPNAVINST 5510.1 series). In this instruction, policy and guidance from the Department of Defense (DOD) Information Security Program Regulation (DOD 5200.1 series) are printed in boldface type, while those of the Department of the Navy are printed in regular type. The Navy supplementation (regular type) of OPNAV 5510.1 series is an explanation, or an extension in more detail, of the basic text of the DOD instruction.

CLASSIFICATION CATEGORIES

Official material that requires protection in the interests of national defense is limited to three categories of classification which, in descending order of importance, carry the designations Top Secret, Secret, or Confidential. No other designation is used to classify defense matter, as requiring protection in the interests of national defense, except as expressly provided by statute (e.g., Restricted Data and cryptographic systems).

The test for the classification is the content of the subject matter. The words, matter,

ection with classification, are synonymous.

SECRET

Use of the classification Top Secret is limited to defense information or material that requires the highest degree of protection. The Top Secret classification is applied only to that information or material the defense aspect of which is paramount, and the unauthorized disclosure of which would reasonably be expected to cause exceptionally grave damage to national security, such as

1. Leading to a definite break in diplomatic relations affecting the defense of the United States; an armed attack against the United States or its Allies; a war.
2. The compromise of military or defense plans, or intelligence operations, or scientific or technological developments vital to the national defense.

SECRET

Material classified as Secret is limited to defense information or material the unauthorized disclosure of which would reasonably be expected to cause serious damage to national security, such as

1. Jeopardizing international relations of the United States.
2. Endangering the effectiveness of a program or policy of vital importance to national defense.
3. Compromising important military or defense plans, or scientific or technological developments important to national defense.
4. Revealing important intelligence operations.

CONFIDENTIAL

Use of the classification Confidential is limited to national defense information or material the unauthorized disclosure of which

might be injurious to the national security. A few examples of the types of material so classified include operational, battle, and intelligence reports, devices relating to communication security, mobilization plans, military radiofrequency and call sign allocations, information relating to the strength of ground, air, and naval forces, and documents concerning the selection and promotion of military personnel, disclosure of which might violate the integrity of the competitive system.

RESTRICTED DATA

The term Restricted Data as defined in the Atomic Energy Act of 1946 means all data concerning (1) the development, production, or utilization of atomic weapons, or (2) the production of special nuclear materials or the use of special nuclear materials in the production of energy.

The term Further Restricted Data applies to classified defense information which has been removed from the Restricted Data category pursuant to the Atomic Energy Act of 1946 and the current Executive Order on Restricted Data, except under special circumstances.

Restricted Data and Further Restricted Data are subject to the same security protection categories, but are subject to different marking and handling requirements. Further Restricted Data is subject to the same security marking and handling requirements as Restricted Data.

FOR OFFICIAL USE ONLY

The designation For Official Use Only is assigned to material that requires a lesser degree of protection than that required by the marking requirements for the Restricted Data category, does not require release to the public for the national defense, is not subject to the Atomic Energy Act, and is not subject to the marking requirements identified by Executive Order. Examples of material include personnel and material records, investigative reports, examination questions and answers, and the like.

DOCTRINAL MATERIAL

Doctrinal material is classified into the three standard categories (Top Secret, Secret, and Confidential) but receives somewhat more careful handling than other material of the same classification. This material can be divided into two groups: tactical warfare publications that are promulgated by the CNO, and naval warfare communication publications that are under the cognizance of Commander, Naval Telecommunications Command (COMNAVTELCOM).

Tactical warfare publications deal with tactics, warfare, procedures, and terminology of the Navy. They incorporate the results of fleet experiences and include pertinent data supplied by the systems commands, laboratories, and other naval organizations. The most commonly used are the Naval Warfare Publications (NWP series), Naval Warfare Information Publications (NWIP series), Fleet Exercise Publications (FXP series), and Allied Exercise and Tactical Publications (AXP and ATP series). Naval warfare communications publications were covered in the preceding chapter.

Normally, a Naval Warfare Publications Library (NWPL) is maintained on board ship or station to ensure that a full allowance of tactical warfare publications is available for use, that publications are correct and up to date, and that security provisions are observed. The functions and responsibilities of the NWPL may be divided into a communications publications library and a tactical publications library, providing the division between libraries is specified.

AUTHORITY TO CLASSIFY, DOWNGRADE, AND DECLASSIFY

The authority to assign a classification to original information that requires, in the interest of national security, a specific degree of protection against disclosure is restricted to those officials who have been designated the authority in writing. Also, each of these designated officials may designate, in writing, this authority to an individual to act in their absence. The exercise of this authority is personal to these officials and may not be

delegated by them or used by anyone acting for them or in their names. Designations of this authority are limited to the minimum number absolutely required for efficient administration, and to those officials whose duties and responsibilities involve the origination and evaluation of information warranting classification at the level stated in the designation. Administrative convenience alone is not a valid base for requesting or granting this authority.

Under the provisions of Executive Order 11652, reference (b), only the Secretary of Defense and the Secretaries of the Military Departments may designate officials to exercise Top Secret original classification authority. Thus, SECNAV must designate those officials in the Navy who will exercise Top Secret original classification authority. The same rules apply to the original classification of Secret information except that the Secretaries of the Military Departments may designate, in writing, Top Secret classification authorities who can designate officials to exercise Secret original classification authority. SECNAV has designated the Director of Naval Intelligence (DNI) this authority. Since the authority of a designated official to assign a particular classification automatically extends to the assignment of any lower classification, the Department of the Navy does not designate original Confidential on the basis that Top Secret and Secret classification authorities will adequately cover the classification needs. A list of the Navy officials who have the authority to classify original information is located in Appendix A of the current OPNAVINST 5510.1.

Requests and recommendations for original classification authority are addressed, through established channels, to the CNO (DNI). The DNI maintains a current list of naval officials (by title) designated to exercise original classification authority. The DNI also submits changes to the list of officials designated to exercise original classification authority to the Secretary of the Navy for his approval. A second list is submitted to the Deputy Assistant Secretary of Defense (Security Policy) quarterly.

There are occasions when the originator of a document, message, et al., must go beyond the

of his original classification authority. In case, the normal procedure is to assign a classification level and forward the information in question to the next superior having assignment authority along with a recommendation that the appropriate classification be assigned.

Original classification authorities or higher authorities in the same chain of command are authorized to downgrade or declassify information classified by the original classifier. A higher authority in the chain of command or another authority having primary cognizance of the subject matter can correct an erroneous classification which has been assigned by a subordinate.

The DNI is the central reference point for all matters of classified material. When there is a conflict as to the classification or when a conflict of cognizant offices exists, the DNI will coordinate for the necessary coordination and make every effort to establish a consensus as to the appropriate classification, downgrading, or declassification of the material. Matters which cannot otherwise be resolved by mutual consent will be decided by the DNI.

DERIVATIVE CLASSIFICATION

An important aspect of classification that is rarely understood is the difference between original and derivative classification. Original classification is warranted only when an item of information is developed that requires classification and such classification cannot reasonably be derived from a previous classification of related information. For example, information pertaining to a technological breakthrough or a significant technological advance will generally require the assignment of original classification authority.

The overwhelming majority of all classified information is the product of derivative classification. As the word implies, this type of classification is based on and obtained from a previously classified information. If the information to be classified is in substance the same or closely related to other information for which a proper classification has already been assigned, the same classification would be applied.

Suppose you are submitting a report on the sighting of a Soviet trawler in the South China Sea. If the report is based on a source document which states that particular categories of reports should be classified, your classification is derived from that source. Only when guidance in any form is nonexistent is the classification an original one. While the guidance given in this example of derivative classification was minimal, most of the information derivatively classified is simply extracted or copied from documents previously classified. In this case, it is the responsibility of the individual who copies or extracts the classified information to ensure that the extracted information bears the same classification in the new document as it did in the source document.

In marking a derivatively classified document, the source of that classification (e.g., CNO Ltr, ser OP-009 of 1 Oct '77) must be cited on the "classified by" line. This action is necessary to support the derivative classifier. Records must be available for the lifetime of the document to show the basis for classification or to trace the chain of classification authority.

CLASSIFICATION GUIDES

To assure accurate, uniform, and consistent classification, all naval activities are now required to issue classification guides, in the form of instructions, that identify the critical items of information requiring classification for all projects (program or system) under their cognizance. These guides cover, phase by phase, the transition of a project through development, test and evaluation, procurement, production, and service use. The guide not only identifies the critical items of information that require classification; it provides guidelines for downgrading and declassifying information concerning the project.

CLASSIFICATION MARKINGS

Classified documents bear the category of classification at the top and the bottom, on the outside of the front and back cover, and on the title page. The lettering is in red, when

practicable, and larger than the normal lettering. Each interior page of a document is marked with the highest classification of information appearing thereon, including the designation "Unclassified" when appropriate. When a document is printed on both sides of the page, the highest classification of any information on either side will dictate page marking on both sides. However, if one side has information of a lower classification, the following type of additional information is made at the bottom of the page:

CONFIDENTIAL
(THIS PAGE IS UNCLASSIFIED)

In addition to page-by-page marking, each section, part, paragraph, subparagraph, illustration, table, heading, caption, etc., in any classified document including correspondence and electrically transmitted messages is marked to reflect its own classification or the fact that it is unclassified. The appropriate marking (the symbols TS, S, C, or U are acceptable) is placed in parentheses preceding the first word of the paragraph or, if a paragraph is numbered, immediately following the numerical designation.

Except while in the process of local distribution in the custody of persons authorized to handle such matter, classified documents must, while in transit, be placed in double wrappings or envelopes. The inner wrappings or envelope shall show the address of the receiving activity, the classification, and when appropriate, any special handling restrictions. The outer wrapper or envelope will contain the complete address and return address of the sender and will not be marked in any way which might indicate the fact that the contents are classified.

AUTOMATIC DOWNGRADING AND DECLASSIFICATION

The national interest demands that classified information be made available to the general public when secrecy no longer is of value. In line with this principle, a command may at any time downgrade or declassify the material it has

On March 8, 1972, the President signed Executive Order 11652. The intent of the executive order was that less official information would be classified, more declassified, and that which is classified would be better protected. Thus, at the time of origination, each classified document or other material created after 1 June 1972 must be marked with a downgrading and declassification date. This date is set by a general declassification schedule (GDS) shown in figure 26-1 and described as follows:

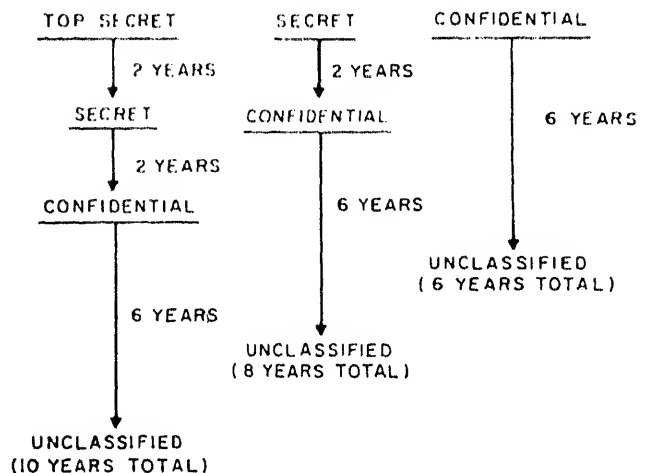
1. Top Secret: Information and material is downgraded to Secret 2 calendar years after origination, downgraded to Confidential 4 years after origination, and declassified 10 years after origination.

2. Secret: Information and material is downgraded to Confidential 2 calendar years after origination and declassified 8 years after origination.

3. Confidential: Information and material is declassified 6 calendar years after origination.

Provisions for the exclusion of certain information from the GDS have been made when the information is of a very delicate nature. Exemptions are made when

1. Furnished by foreign governments or international organizations and held by the



States on the understanding that it be of confidence.

Specifically covered by statute (e.g., coded data and formerly restricted data) or relating to cryptography, or disclosing intelligence sources or methods.

The continuing protection of a system, installation, project, or specific foreign intelligence matter is essential to the national security.

Disclosure would place a person in immediate jeopardy. In each case, the Top Secret authority shall specify by number the classification category being claimed (i.e., 1, 2, 3, 4). The classification authority shall specify a date or event for the automatic declassification of information or material involved.

When it becomes necessary to classify the information or material by broad category, such as nuclear propulsion data, the classification authority must obtain CNO approval.

Whenever possible the original classifying authority will be shown including, if applicable, identification of the controlling classification guide. If this is not shown, the name of the person who signs or finally approves the document or directive will be deemed the classifying authority.

If the information is derivative in nature, the document the material is taken from is to be shown, and the classifying authority. If a multitude of sources is used, the title and address of the source and the person preparing the document is the classifying authority.

DISCLOSURE OF CLASSIFIED MATERIAL

It is imperative that classified material be protected from compromise. This is accomplished primarily by—

- Thorough indoctrination of personnel.
- Maintenance of proper custody.
- Reducing the amount and level of the classified material in custody by downgrading, declassification, and destruction when appropriate.

4. Limiting accessibility to those who have a "need-to-know."

Each person to whom classified matter is entrusted or made known must protect it against loss or compromise. He is responsible for any act or failure on his part that may in any way contribute to its loss, compromise, or unauthorized disclosure. This includes information that is transmitted orally. Classified material must not be removed from the ship or station by which it is issued, unless so authorized by the commanding officer. Classified material may be released into the personal custody of Reserve personnel in an inactive duty status only when the issuing authority has been assured that facilities are available to the personnel concerned such as will afford physical security to the matter in accordance with current stowage regulations prescribed by the current OPNAVINST 5510.1.

RULES FOR DISCLOSURE

The existence, nature, content, or whereabouts of classified matter is disclosed only to the extent required by the circumstances.

In determining the limits of dissemination, due consideration must be given to the degree of classification, the need-to-know, and possession of the appropriate security clearance. No person is entitled to knowledge or possession of classified matter solely by virtue of his grade, office, or position. Classified military information is disclosed only to personnel having a legitimate interest therein.

A personnel security clearance is an administrative determination that an individual is eligible, from a security standpoint, for access to classified information of the same or lower category as the clearance granted. The various investigations that must be made before a security clearance is issued are carried out by the Defense Investigative Service, but the final decision to grant a clearance is made by the individual's commanding officer. A certificate of clearance does not in itself constitute authority for access to classified information. It is merely

determination of eligibility for access. Classified data is made available to appropriately cleared persons only when a "need-to-know" is established clearly.

Every effort is made to keep responsible officials informed. Security carried to such an extreme that vital information is not received by executing activities in sufficient time or detail defeats the purpose for which the classified matter was prepared.

In this connection, the need for the dissemination of certain types of classified information for training purposes must be recognized. It sometimes is necessary, for purposes of briefing and training, to disclose classified information to specifically designated officers, although such information is not required on their present duty.

DISCLOSURE TO THE GENERAL PUBLIC

In the interest of national security, classified information is not released to the public. Classified matter of genuine public interest, however, may be referred to the originator or a responsible higher authority for review. If prudent to do so, such matter may be downgraded in whole or in part and the declassified portion made available to the public.

Classified matter appearing in encrypted messages requires additional steps prior to release. These procedures may be found in the pertinent cryptosecurity publications. The release or publication, authorized or unauthorized, of specific information to the press, radio, or other public dissemination activities does not in itself declassify all related information on the same subject. All information is classified according to content. Thus operational, technical, and other details which have not been declassified by competent authority are safeguarded according to the assigned classification.

The inclusion of classified information in any article, book, speech, or public discussion by a naval member or civilian employee of the Department of the Navy for dissemination outside the Department is prohibited.

Subject to the above and certain other requirements, officers and others attached to or employed by the Department of the Navy are at liberty to publish articles without further permission from higher authority. Upon request, prior to publication or delivery, the Chief of Information obtains technical review and advises authors and speakers of any changes considered necessary from the standpoint of security. He also advises them with regard to overall Government policy. In all cases, however, the final responsibility for statements rests upon the individual writer or speaker.

"Security at the source" is a necessity. Before arrival in port following a period of operations, personnel should be cautioned concerning special or unusual security requirements connected therewith. Braggadocio is costly—sometimes in American lives. What might appear to be harmless, interesting information may be just the type of data that the enemy is striving to gather.

Immediately upon the arrival within a command of press correspondents and other representatives of public information activities, the commanding officer should advise them concerning security limitations as affecting the release of information to the public. Their cooperation in the protection of classified information which they may inadvertently obtain should be sought.

DISCIPLINARY ACTION FOR SECURITY VIOLATIONS

Individuals found responsible for the loss, compromise, or unauthorized disclosure of classified matter, and individuals who violate security regulations, are promptly and adequately disciplined. Disciplinary action may include, in the case of military personnel, trial by court-martial or, in the case of civilians, prosecution under Title 18, United States Code, as amended, or other Federal statutes as appropriate.

Violations of regulations pertaining to the safeguarding of classified matter, but not resulting in its loss, compromise, or unauthorized disclosure, normally are acted

by the commanding officers of the persons concerned without reference to other authority. Thus, an enlisted man or officer who carelessly or negligently mishandles classified information will be disciplined by his commanding officer or by a court-martial depending on the circumstances. If mishandling results in loss or compromise, disciplinary action is almost sure to be taken.

SPECIFIC PROTECTIVE MEASURES

There are, in general, four ways in which classified information is protected: censorship, communication security, transmission security, and cryptographic security.

PERSONAL CENSORSHIP

Personal censorship places a barrier between classified information and unauthorized persons preventing its disclosure in letters, communications, and personal contacts. It means the withholding of information at the source, the refraining from making official use of it, and depends to a large extent on the integrity and discretion of the individual.

There is no way of estimating how many ships have been lost, how many ships have been sunk, how many lives have been sacrificed, or how many secrets have been lost by someone casually or in a moment of carelessness unintentionally betrayed a vital secret.

Disciplined conversation and personal discretion constitute the greatest menace to security. This applies especially to persons authorized to engage in discussion of office affairs with their families or friends outside the office. It also applies to careless talk in the office in the presence of persons not authorized to have the information. Loose talk in public places and on the telephone is also dangerous. Information imparted to unauthorized persons is often repeated innocently and in ignorance of its importance until it becomes a matter of common knowledge. Foreign intelligence agents are specifically trained to collect and to collate these casual bits of seemingly harmless

information from conversation and rumors which circulate in the vicinity of naval activities. False and erroneous information which has been given deliberately may often provide an agent with a needed fragment. Therefore, automatic censorship of official and unofficial conversation and letters must be a fundamental duty of all personnel. The habit must be cultivated until it becomes routine.

Classified information must not be disclosed over an unsecure telephone. When unsecure telephones are used, the possibility of insecurity due to executive cut-in, phantom voice interception, and deliberate wire-tapping is a threat at all times.

There is only one safe conversational policy to follow when not on duty—say nothing about the work to anyone, even when in the company of authorized personnel. There are few places where conversation cannot be overheard. Remember, it is human nature to pass on a secret accidentally learned.

Official matters that are classified should not be discussed even with members of one's own family or close friends in whom one has the greatest confidence. Naval officers are trained in security and are security conscious. They appreciate security in small things and can see the dangers of revealing classified information inadvertently. Wives and friends without this indoctrination are not likely to be so careful or security conscious. Although they might never intentionally reveal classified military information, they might inadvertently mention a detail in casual conversation. To keep the silence, one should, by skillful maneuvering of the conversation or by the outright refusal to talk shop, decline to discuss official matters. In many cases, it is desirable to plead ignorance of the subject under discussion. Enthusiasm toward one's work is clearly desirable, but not when it results in a discussion of classified naval affairs.

Personal censorship extends also to telephone conversations. Telephone wires can be tapped and are tapped. Private lines are less secure than party lines because they are specifically labeled and are therefore easy to locate at junction points in the cables. Conversations may be heard at the switchboard and various other points along the circuit.

PHYSICAL SECURITY

Physical security is concerned with protecting classified documents, devices, and material so that they never fall into the hands of unauthorized persons or come within either optical or camera range of actual or possible enemies.

Knowledge of classified information can be a dangerous possession. That is why only a limited number of naval personnel are authorized to handle and use classified matter. The loyalty of other personnel seldom is questioned; but if they have no classified information, the chances of such information falling into the hands of outsiders are greatly lessened.

The first obligation of officers or enlisted men working with classified matter is to protect that matter from being seen by any unauthorized individual, either military or civilian. There is no reason for persons not concerned with classified matter to have access to it until it becomes necessary to do so to discharge their duties properly.

Classified material may neither be removed from its designated working space nor left unguarded. When not actually in use, it is kept locked in the proper accommodation, for a single glance at a message or a cryptographic aid may be enough to betray the system. Another danger is that a photograph could be taken in a split second with a concealed camera. Classified materials are not subject to the same hazards on shipboard as on land. Even in the event of the capture or crippling of a ship, these materials are not likely to fall into the hands of the enemy except through carelessness.

When a code or cipher is captured, not only is the key available for deciphering current and past messages, but the basic style and structure of the system are so apparent that enemy cryptanalysts are greatly aided in breaking similar systems.

The materials and methods used to prepare classified messages or other matter are

by chemical treatment and photography. Words on stencils, cushion sheets, carbon paper, desk blotters, backing sheets, and typewriter ribbons are almost as legible as the original. For this reason, the same care should be given materials and supplies used for classified matter as is given to the matter itself.

TRANSMISSION SECURITY

Transmission security is achieved by reducing to a minimum the information the enemy can obtain from the study of our communications through interception and traffic analysis, chiefly of our radio traffic, even though he cannot break down our codes and ciphers. Visual transmissions are included, but the limited range of such methods makes the security problem comparatively simple.

Whether a transmitted message goes by courier, radio, visually, or by mail, if it is classified, it has to be safeguarded during transmission. The means of protection may differ but the purpose in each instance is the same: to keep that message out of the hands of those not authorized to receive it.

Transmission security is that condition which results from all measures designed to protect transmissions from interception and traffic analysis. The relative security of one means of transmission over another varies according to circumstances. Inasmuch as every transmission is subject to interception, protective measures must be taken to reduce to a minimum the information gained by unauthorized persons.

The means of transmission in the approximate order of security are as follows:

1. Messenger.
2. Registered mail—military, United States postal, or diplomatic pouch.
3. Approved wire circuits.
4. Ordinary mail—military or United States postal.
5. Nonapproved wire circuits.

the only possible way to obtain absolute communication security is to refrain from all communications. This applies particularly to radio, and that, of course, is sometimes impossible. Messages have to be sent and communications established to prosecute any plan of operation.

Use of one of the more secure transmission methods mentioned above tends to reduce the amount of traffic available to an interceptor for analytical study.

Handwritten messenger is the most secure method of delivering a document. When a messenger is carrying classified material, he carries it personally at all times. He is armed, and the safety of the material is his paramount consideration.

On land, sending messages by dispatch boat or messenger means is preferable to radio. Boat service is the most reliable of these and can often be carried out with considerable speed. Helicopter messenger is faster than a boat but not always available. Visual methods are more secure than radio and ease the load which is usually imposed on the messenger. Even though they, too, often become intercepted.

Wire systems include telephone, telegraph, teletype, and facsimile. They are grouped into two categories: approved and nonapproved circuits. Approved circuits are designated by the appropriate command under regulations laid down by Joint policy. The classification of circuits that may be transmitted in the clear in an approved circuit depends on the communication rating of the circuit. Electrical circuits are not approved for transmission in the clear (unencrypted) of any traffic having a communication rating higher than Secret. Circuits not designated by appropriate command in accordance with Joint policy, or those linked by radio, are termed nonapproved circuits.

Classified information is not transmitted in the clear over nonapproved circuits except when transmission is too urgent to wait for encryption, and when the speed of delivery is more important than the value of the information to the enemy. Wire communications offer greater security than radio and should be used in preference to radio whenever possible.

Radio is the most used, the most consistently overloaded, and the least secure means of all. Each message sent by radio is open to reception by any friend or enemy who has the necessary equipment and is within the reception range. Of course, there is no alternative when at sea unless the message can wait; but in port or at shore stations, transmission by mail will frequently suffice.

The use of radio has advanced to a point where it has become the prime means of electronic communications. This has a profound effect upon communication security. The speed, range, and versatility of radio have enabled communications to keep pace with the mobility of modern warfare. But the use of radio has also exposed communications to their greatest danger. The mere fact that a radio station is on the air is a source of information to the enemy. Intercept stations and direction finders enable the enemy to record a large portion of the transmissions in order to determine where they are made. This gives him an opportunity to follow troop movements and to learn the identity, strength, plan, or tactical disposition of a military force. A single electrical impulse can indicate the existence of a unit.

A particular and separate emphasis must be placed on the proper use of radiotelephone. Overuse and carelessness are two traits that may accompany voice transmission.

The mistaken idea that voice radio transmissions are more secure than coded transmissions is one of the most frequent illusions in the field of electronic communications. Voice transmissions on any frequency are, in reality, less secure than coded transmissions on the same frequency because anyone familiar with the language can understand them without knowing the telegraphic code.

CRYPTOGRAPHIC SECURITY

Cryptographic security is provided by codes and ciphers used in communications and is concerned with their proper construction and correct use so that the coded messages cannot be broken by the enemy.

For almost as long as man has possessed the ability to write, he has also been able to disguise his writing so that only those knowing his system can understand it. Today, one of the most important phases of communications is cloaking what is said under the wraps of a code or cipher. The standard term for this technique is cryptography.

Both code and cipher are systems of cryptography. Code encryption is obtained by applying the arbitrary substitution of entire words, phrases, or even complete sentences of the plain text. Cipher is obtained by generating a system of alteration of letters of the plain text, and thus a set of substitutions is derived without reference to an arbitrarily fixed list of substitutions.

In recent years the Navy has developed what is called "on-line" communications. This refers to communication processing systems that electronically encipher or decipher messages transmitted by teletypewriter. The process of enciphering or deciphering manually is now referred to as "off line" communications.

The apex of cryptosecurity is when the originator can convey his unobscured thought to only the proper addressee.

Certain of our cryptosystems offer the ultimate in military communications security today. Other systems have a lower degree of security and are used only for designated and limited purposes. All cryptosystems convert classified messages to a form intelligible only to the person holding the key. The safekeeping of all these cryptomethods, systems, and devices is as necessary in peacetime as in war. Cryptanalytic attacks spread over several years are more likely to succeed than attacks limited to a few months. All persons handling classified messages or translations of encrypted messages are required to be actively aware of the potential danger of disclosing classified information.

DESTRUCTION

When classified materials are no longer useful, they are destroyed under supervision, never discarded in wastebaskets for ordinary disposal. If immediate destruction is not

feasible, they are torn and stored in a safe or a secure "burn bag" until they can be destroyed.

Classified documents are destroyed by burning, pulping, pulverizing, or shredding. Shredding is the method employed most commonly in the Fleet. When destruction is accomplished by means other than shredding, the residue must be inspected to ensure complete mutilation.

When classified papers are burned, the destruction should be witnessed by two commissioned officers. If sufficient officers are unavailable, warrant officers, enlisted personnel, or civilians may witness the burning, provided they are cleared at least for the highest category of material being destroyed. Witnesses must watch the burning until destruction is complete, after which the residue is obliterated completely by scattering or reduction to sludge. When appropriate, a certificate of destruction is prepared and signed.

The commanding officer or a designated representative provides a detailed emergency destruction bill for the destruction of all classified matter in the event the ship is captured or sunk. This bill shows the responsibility of personnel by duty rather than by name and states the priority in which publications and apparatus are to be destroyed. Sinking classified material at sea in weighted bags is unsafe, even in deep water. In shallow water, salvage by the enemy is possible and probable. Ordinarily, destruction by fire is preferred.

SECURITY AREAS

Spaces that contain classified matter are known as security (sensitive) areas. The areas have varying degrees of security interest, depending on their purpose and the nature of the work and information or materials concerned. To meet different levels of security sensitivity, three types of security are established. All such areas are clearly marked by signs reading, "Restricted Area."

EXCLUSION AREA

Spaces requiring the strictest control of access are designated exclusion areas. They

access to the area permits, for all practical purposes, access to such matter.

The exclusion area is fully enclosed by a physical barrier of solid construction. All entrances and exits are guarded, and only those personnel whose duties require access and who possess appropriate security clearances are authorized to enter.

EXCLUDED AREA

A limited area is one in which the controlled movement of personnel permits access to classified information. Within the area, access may be prevented by escort and other physical controls.

The area is enclosed by a clearly defined physical barrier. Entrances and exits are guarded and controlled by attendants to check personnel identification. The area may be protected by an automatic alarm system.

Provision for emergency destruction shall be made as follows:

1. Communication Security (COMSEC) material.

2. Top Secret Special Access material. Then Top Secret material.

3. Secret Special Access material. Then all Secret material.

4. Confidential Special Access material. Then all Confidential material.

5. Unclassified equipment which could be turned over to the enemy together with pertinent technical, descriptive, and operating instructions.

6. Top Secret, Secret, and Confidential information must be destroyed beyond recovery. If time does not permit destruction, the commanding officer, if the person concerned must act on his own initiative.

7. Whenever evidence is received that a code or key may have been broken or captured by the

enemy, outstanding publications devoted to it are destroyed. Continued use of the compromised system may result in defeat. Therefore, whenever anyone uncovers evidence that unauthorized personnel have had access to classified matter or that a system may have been otherwise compromised, he must report the details promptly. In event of the loss of a ship, it is essential that the Navy Department be given full details of the disposal of classified matter in general, and cryptographic systems and publications in particular. This report is prepared by the senior survivor.

Operating and maintenance personnel who require freedom of movement within a limited area must have a proper security clearance. The commanding officer may authorize the admittance of persons who do not have clearances, in such instances escorts or attendants are used and other security precautions are taken to prevent access to the classified information located within the area.

CONTROLLED AREA

A controlled area usually does not contain classified information. It serves as a buffer zone to provide greater administrative control, safety, and protection for the limited or exclusion areas. The areas require personnel identification and control systems adequate to limit admittance to those having bona fide need for access to the area.

Passageways or spaces surrounding or adjacent to limited or exclusion areas may be designated controlled areas.

SAFEKEEPING AND STORAGE

Classified information or material cannot be used, held, or stored where there are no facilities adequate to prevent unauthorized persons from gaining access to it. The exact nature of security requirements depends on a security evaluation of local conditions and circumstances. These requirements must permit the accomplishment of essential functions while affording a

reasonable degree of security with a minimum calculated risk. In the Navy, the commanding officer is directly responsible for safeguarding all classified information within his command and for assuring that classified material, not in actual use by appropriately cleared personnel or under his direct personal observation, is stored in the prescribed manner.

NUMERICAL EVALUATION

A system of numerical evaluation has been developed for the purpose of providing a uniform guide for establishing security protection for classified material in storage commensurate with the security interest in such material. It provides not only a means of determining the relationship between the security interest and the level of protection needed, but also sets forth values for various elements of a security program which may be combined to produce an acceptable level of protection. The system of numerical evaluation does not guarantee protection, nor does it attempt to meet every conceivable situation. The law of diminishing returns limits the measure that can be employed profitably. However, with a commonsense implementation of the system of numerical evaluation it is possible to obtain a satisfactory degree of security with a minimum sacrifice in operating efficiency.

The elements of the numerical evaluation system consist of a table of assigned numerical values for various types of storage areas, containers, and guarding and alarm systems. Also included is an evaluation graph that establishes, in the form of numerical values, minimum levels of relative security required for the protection of classified material based on the classification, quantity, and scope of the documents or equipment. The table and graph are located in chapter 5 of the current OPNAVINST 5510.1.

To apply the numerical evaluation system to a security program, select from the table the appropriate numerical equivalents for each applicable element in the security program and total them. For example, if the classified

material is stored aboard a commissioned naval ship (25 points) in a class 1, approved General Services Administration (GSA) security container (70 points), the numerical equivalent for the total program would be 95 (25 + 70) points. (More points would be added if the container is located in a controlled, limited, exclusion, or guarded area.) Next select a subcategory from the graph which most accurately describes the material in storage. If the material in the prior example consists of two Secret documents, the graph indicates that the minimum level of security is 50 points. Therefore, in this example, the security program more than meets the required standard.

STORAGE

Whenever classified material is not under the personal control and observation of an authorized person, it will be guarded or stored in a locked security container.

Top Secret documents should be stored in a safe or safe-type steel file container having a three-position combination lock as approved by the GSA, or a class A vault which meets the standards established by the Director of Naval Intelligence. Also an alarmed area may be used to protect Top Secret material, providing it is adjudged by the local responsible official to afford protection equal to, or better than, the safe, steel file, or vault. The alarmed area must provide a physical barrier adequate to prevent removal of the material, and observation when observation would result in the compromise of the material.

Secret and Confidential material may be stored in the manner authorized for Top Secret; or, in a class B vault, a vault-type room, or a secure storage room which has been approved in accordance with the standards prescribed by the Director of Naval Intelligence. Also, until phased out, Secret and Confidential material may be stored in nonstandard GSA steel filing cabinets having a built-in, three-position, dial-type combination lock or; as a last resort, a steel filing cabinet equipped with a steel locking bar, providing it is secured by a GSA approved changeable combination padlock.

CONTAINER DESIGNATIONS COMBINATIONS

Each container used for storage of classified material is assigned a number or symbol for identification purposes. The identifying numbers and symbols will be affixed in a conspicuous location on the outside of the container. Each container will also be designated as to the category of classified material to be stored therein. However, this designation will not be externally marked on the container.

The combination used for a container used for the storage of classified material is assigned a security classification equal to the highest category of classified material authorized to be stored in the container. Records of combinations are sealed in envelopes (OPNAV Form 5511/2) and kept by the security manager, duty officer, communications officer, or other persons designated by the commanding

officer. Combinations will be changed under any of the following conditions:

1. When first placed into use.
2. Annually.
3. When the combination or record of combinations has been compromised or the security container has been discovered unlocked and unattended.
4. Whenever an individual knowing the combination has been transferred or discharged, and when the security clearance of that individual knowing the combination is revoked, suspended, or revoked.

When selecting new combinations, numbers for a security container should not be sample ascending or descending numbers, and should not contain personal data, such as birth dates and Social Security numbers, or other identifying information. Combinations must be changed for all containers.

CHAPTER 27

NAVAL INTELLIGENCE

More than 2000 years ago, a Chinese general named Sun Tzu is reported to have said

"Hostile armies may face each other for years, striving for victory which is achieved in a single day. This being so, to remain in ignorance of the enemies' condition . . . is the height of inhumanity . . . Thus what enables the good general to conquer is foreknowledge."

Intelligence, properly performed, can provide foreknowledge both for government and military leaders. It is an aid in reaching sound decisions which are vital to the security of a nation as well as to success in combat. It can reduce the possibility of surprise, evaluate the enemy potential, and predict the enemy area of operation.

MEANING OF INTELLIGENCE

The misconception of intelligence as a mysterious, glamorous, and hazardous undertaking has been derived principally from two sources. Its "cloak and dagger" treatment in popular literature, and the natural reluctance of governments to disclose the inner workings of their intelligence organizations. Because the nature of intelligence work is often quite critical, the inflexible rule has been to surround this activity with the strictest of security regulations. Thus a void is created in public opinion that is filled by fictional versions of intelligence work.

While it is true that intelligence work does have its exciting moments, properly understood

it is very similar to any other military staff function. In general terms it may be considered as knowledge upon which a course of action may be safely based. In its entirety, it is a vast and complex grouping of information covering a wide range of subjects: geography, transportation, telecommunications, sociological factors, political conditions, economic conditions, armed forces, technical developments, and biographical data. The components are closely interrelated and a valid "estimate of a situation" is possible only by considering each in its relation to the others.

Intelligence activities have three basic purposes and are thus divided into three functional segments: strategic intelligence, operational intelligence, and counterintelligence.

Strategic intelligence is used mainly by top echelons of command and top-level leaders in government as the basis for national planning and policy; i.e., in reaching broad decisions affecting the security and welfare of a nation.

Operational intelligence aids the local commander to arrive at decisions involving the physical employment of personnel and material against an adversary; i.e., it helps him to resolve his mission and supervise planned action against the enemy. Some of the information used for strategic purposes also may be employed for operational purposes, but the on-the-scene commander executing a planned mission requires much more detail than the strategic (long-range) planner.

Counterintelligence is designed to destroy the effectiveness of the intelligence efforts of foreign nations. It is not enough for a nation actively to collect foreign intelligence about

tual or potential enemies. There must also be protection for its own vital information from the prying eyes of other powers. Positive foreign intelligence is actively at work.

The term "Naval Intelligence," when capitalized, means the organization which, under the Commander, Naval Intelligence Command, is responsible for and carries out the intelligence mission of the Navy.

When used as an abstract noun to designate the material obtained, processed, and disseminated to appropriate naval authority, the term "naval intelligence" is not capitalized.

A distinction should be made between information and intelligence. Information is the raw material and intelligence is the finished product. Information becomes intelligence after being evaluated.

COMPONENTS OF THE INTELLIGENCE PROCESS

Naval Intelligence is concerned primarily with collecting information of naval interest. Any data that might support the Navy in carrying out its mission or the missions of its component parts, such as naval aviation, the amphibious forces, and the Marine Corps, is considered to be of naval interest.

The intelligence process normally follows the sequence of collection, processing, and dissemination. Information collected may be general or specific, detailed or fragmentary, true or false. Only when the raw material is processed and finally evaluated does it become intelligence of value to users.

Collection of information takes place continuously all over the world. Although there are well-defined components (discussed later) within Naval Intelligence that are responsible for collection, every person in the Navy is a potential collector of valuable information. Collected information flows to the Naval Intelligence Command (NIC) and the Defense Intelligence Agency (DIA).

During the processing step a given item of information undergoes a thorough series of tests

and analyses designed to reveal its inherent worth and significance, and the reliability of the source from which it originated. The DIA, NIC, major fleet commands, and fleet intelligence centers all process raw information and produce finished intelligence. Much finished operational intelligence is obtained in the integrated operational intelligence centers on large ships. In any event, when processing is completed, the item becomes intelligence and is ready for dissemination.

Dissemination means conveying the finished intelligence to individuals who need it for the formulation of plans and policies or the conduct of operations. Intelligence is disseminated by such means as oral lectures, letters or written reports, published monographs or studies, and graphic media. The continuous flow of accurate, timely, and complete naval intelligence is instrumental in the successful execution of all naval operations. Through periodic training exercises to the deployment of the fleet units under war conditions, the dissemination of such intelligence is an essential part of the

ORIGIN AND DEVELOPMENT OF NAVAL INTELLIGENCE

The search for a means to coordinate the establishment of an intelligence organization in the Navy dates back to the early days of the signal and intelligence branches. Technical developments that were taking place in the latter years of the 19th century led the Navy Department to realize that there were no reliable sources of information, and that it was difficult to obtain technical data from other nations. To alleviate this need a general order was published by the Secretary of the Navy in 1882 which established the Office of Intelligence under the Bureau of Navigation. "For the purpose of systematizing the collection and classification of information in relation to the strength and resources of foreign navies."

From the beginning, two functions were emphasized: collection and dissemination. The original organization called for these aims to be implemented at all command levels from fleet commanders in chief down to commanding

officers of individual ships. Each was directed to appoint an officer from his staff or command to gather positive intelligence on foreign developments, particularly in the areas of ship construction and ordnance.

Initially three officers were assigned primary duty in the Office of Intelligence in Washington. They were assisted by another officer serving as an attaché in London. As the office had not been established by congressional action, there were no "housekeeping" funds appropriated and the office was run by borrowed clerks using borrowed equipment. This condition existed until after the Spanish-American War.

Strained relations between the United States and Spain resulted from the Cuban Rebellion of 1895. From this time until the war with Spain was declared in 1898, the Office of Naval Intelligence (ONI), as it was now designated, prepared special data on the strength and disposition of the Spanish Navy and shore installations. After the outbreak of hostilities, a number of vessels were purchased through ONI in foreign capitals for the U.S. Fleet. Naval attachés, in addition to buying ships and war materials, kept close track of the movements of the squadrons of Admirals Cervera and Camara. Information was furnished by ONI to the Naval War Board, which was charged with preparing strategic war plans and advising the Secretary of the Navy on the conduct of the war with Spain.

In 1899, the Office of Naval Intelligence was established on a permanent, appropriated basis by Congress. It was charged with obtaining warship construction data and with providing knowledge of the strength and disposition of enemy forces in time of war. In spite of this seemingly important development, it remained an unimposing organization; the annual report of the Secretary of the Navy for 1900 listed only seven officers as permanently assigned to ONI. It was an evident case of the classic disregard that democratic countries have shown for their armed forces in time of peace. This lack of interest and the inevitable lack of funds hampered the growth of ONI until the outbreak of World War I. An additional problem was that, during this formative stage, intelligence duty was not looked upon favorably by professional officers. Consequently, most of the personnel

assigned were on their last tour of duty and simply "marking time" until they would be retired. The few capable officers that were assigned were thwarted in their efforts, and an accompanying rapid turnover of personnel served to destroy all semblance of continuity of policy or effort.

In 1909 the Navy Department was reorganized by executive order. Four aides to the Secretary of the Navy were appointed, one each for operations, personnel, material, and inspections. The aide for operations had cognizance over ONI. In March 1915 the office of Chief of Naval Operations was created by law, and ONI was assigned to his office.

NAVAL INTELLIGENCE IN WORLD WAR I

At the outbreak of World War I, ONI consisted of eight officers and ten civilians. In 1915 a War Information Service was begun on a small scale. This activity was expanded the following year when the Naval Appropriation Bill approved by Congress provided ONI with specific funds for obtaining information at home and abroad.

When the United States entered the war in 1917, Naval Intelligence was prepared, with a greatly expanded organization, to carry out its dual mission of safeguarding the naval establishment at home and acquiring intelligence on foreign powers through naval attachés and from other sources.

Aides for information were assigned to the admiral in command of each of the naval districts. These aides were responsible for investigations, inspections, and censorship in the various naval districts. In carrying out their duties, they maintained close liaison with ONI.

Branch offices of ONI were established in several cities, and they reported directly to Washington. They had cognizance over work which was not appropriate to the aides for information.

Close and cordial relationships between ONI and other Government departments and agencies were established during World War I, and liaison was also maintained with the intelligence

means of the Allied powers. Because much intelligence about the enemy was made available to the Allies, the principal contribution of Naval Intelligence in World War I was its work in counterintelligence on the homefront. By helping to preserve the security of American ships carrying troops and supplies across the Atlantic, and by guarding the freight terminals, warehouses, docks, and other places at which war material was concentrated, and the factories in which it was produced, Naval Intelligence did much to ensure victory for the Allied cause.

After the war ended, the pendulum swung back as public opinion demanded a sweeping mobilization of the Armed Forces and a return to the "normalcy" of prewar days. The quasi-missionary zeal with which we had gone to war "to end all wars" disappeared and the Army and Navy reverted to the status of small, poorly-financed, and stagnant garrison forces.

The rather large intelligence organization that had developed during the war years deteriorated. Accompanying this internal shrinking was a similar trend in field activities which saw the dissolution of practically all recruiting and training functions. Meanwhile, the international horizon began to darken with the clouds that were to herald World War II.

NAVAL INTELLIGENCE WORLD WAR II

Just as the armed forces of a nation reflect national characteristics, resources, and the state of its technological development, so its intelligence services reflect the character and condition of its armed forces. Thinking in intelligence circles is as bold and original, or as debound and conservative, as thinking in military circles generally.

Both the scope and speed of warfare were tremendously expanded in World War II. More nations were involved over a greater area of the globe, and a greater variety of weapons, complements, and types of equipment was employed than in any other war in history. Scientific improvement of the tools of war led for innovations in tactics and strategy; and original ideas on high planning levels were

implemented by specific research and development as, for example, in the landing craft program of the U.S. Navy or in the submarine program of the German Navy.

The drama of weapon versus counterweapon continued with ever increasing tempo, month after month, year after year, until the most spectacular new weapon of all, the atomic bomb, was released over Japan. The contest did not end with the cessation of hostilities, major powers continue their research and development programs today.

During World War II, changes in techniques and developments took place in the field of intelligence on the part of all U.S. forces.

Probably the most widely known intelligence function performed by this country during the course of the war was the consistent fulfillment of the complex and coordinated tasks necessary to support amphibious operations. Here there was a need for cooperation and unity of effort of the most advanced sort. All available information about the selected invasion area had to be collected, processed, and disseminated to the command. The areas of interest were practically without limit: Climate, topography, tidal variations, population studies, supply and reinforcement points, all these and others had to be synthesized into a coordinated "package" of information, one which could be given confidently to the staffs of all services, coordinated with all agencies in this task, and much of the credit for the successful success of Allied amphibious operations is rightfully given to intelligence personnel.

Intelligence Centers

World War II was the setting for an unparalleled growth of joint service operations, and the field of intelligence kept pace with this development. In the North African landings of 1942, Army and Navy intelligence units were formed into the Joint Intelligence Collection Agency (JICA), which was to act in support of the amphibious landings. The success of JICA's work was limited, due mainly to the inexperience of assigned personnel in the direct

support work that was required. However, JICA was important because it did provide experience for future joint intelligence efforts that began to pay dividends in the Sicilian landings and continued with great success for the remainder of the war.

Centers were also established in the Pacific theater early in the war. The largest and probably the most effective was the Joint Intelligence Center, Pacific Ocean Areas (JICPOA) located at Pearl Harbor. JICPOA was staffed by U.S. and Allied personnel; and as the war progressed across the Pacific, it was responsible for opening subsidiary centers at Guam, Leyte, Ulithi, and Eniwetok. Additional major centers were opened to handle intelligence activities in the other broad areas of the Pacific theater.

Each center had a common primary function: the collection, processing, and dissemination of intelligence information to strategic and tactical commanders. Individually, however, the activities of each center were channelled to fit the particular needs of the war in its local area. For example, JICPOA and its related centers in the central Pacific concentrated on the centralized intelligence for carrier warfare and for first and air support of amphibious operations. In the southwest Pacific, where much support of the island campaigns was required, the 5th Fleet intelligence center was primarily concerned with keeping Army and Marine commanders informed on all naval matters. A great variety of tasks was performed at the centers, including the collection of technical and foreign survival intelligence, intelligence counterintelligence and so on. Maps and charts were collected and kept current. A volume of information was gathered and disseminated. Problems of war were not merely discussed; a major program was directed toward their solution. In addition, the information collected was evaluated, assembled, and forwarded to ONI and other activities in Washington for further analysis.

Air Intelligence

World War II was similar to World War I in that large land armies were locked in struggle on

the continent of Europe, but it differed in that airpower was employed to an extent inconceivable 20 or 30 years before.

Aviation developments revolutionized strategy, tactics, and weapons in the armies and navies of all the belligerents in all theaters of war. How the traditional concept of seapower was affected has been well stated by the late Fleet Admiral Chester W. Nimitz:

“Up to this war, seapower was synonymous with surface ships bristling with guns. Today, and for tomorrow, seapower has taken on new dimensions. It has dived below the surface. It has taken wings. Therefore, I prefer to modernize seapower by making a hybrid of it. Sea-air power conveys the meaning more exactly . . . Seapower and airpower, interdependent and interwoven, provide our carrier-borne fighting planes with a range of 15,000 miles with fuel tanks full and a maximum cargo of ammunition. Seaborne airpower enables our ships to see over the horizon. Seaborne airpower hit the Japanese invading forces in the Coral Sea and at Midway before the ships of the opposing forces could sight one another. Seaborne airpower, vigorous and at peak efficiency, victorious in the last war, may well prevent the next war.”

The sea-air power of which Admiral Nimitz speaks was the stellar performer in a great tri-elemental advance, composed of Army, Navy, and Marine forces across the Pacific. Logistic miracles overcame the hitherto insuperable handicap of ever-extending lines of communication and supply. An increasing flow of new ships, aircraft, and weapons gave our forces the power and mobility which were needed to wrest the initiative from the Japanese.

Power and mobility are of no use unless efficiently employed, and they cannot be so employed unless adequate intelligence is available both to top strategic planners and to commanders in operational areas.

Air intelligence has been defined as that information pertaining to the offensive and

ensive capabilities of foreign nations and their vulnerability to air attack. As with other types of intelligence, it has strategic and operational implications. It is apparent that the interest of the Navy in World War II was most directly concerned with the latter. In general terms, naval air intelligence fell into three broad categories: First, keeping current on enemy operations, tactics, and equipment; second, briefing aviation personnel on all aspects of impending operational flights; and finally, briefing them after a mission to determine mission effectiveness and to aid in planning future missions.

The Navy wasted little time in implementing these ideas. Beginning in February 1942, large numbers of Reserve officers were trained in this specialty at the Air Combat Intelligence School at Quonset Point, R.I., and as quickly as possible were rushed to the fleet.

The primary responsibilities of the air combat intelligence officers in operational areas were to provide adequate intelligence materials, help in the briefing of fliers for combat missions, and to interrogate them afterward. With specially trained photo interpreters, the intelligence officers pored over photographs brought back from the engagement or strike in an effort to learn as much as possible about enemy antiaircraft positions and other installations. In briefing fliers for attacks on specific targets, the intelligence officers used not only photographs but scaled target models turned out by expert modelmakers either on the carrier or at the airbase.

Air technical intelligence officers who had received specialized instruction in plane construction served on crash intelligence teams in combat areas. They recovered enemy planes which had been shot down and spotted new engines, changes in armament and armor, shifts in the location of fuel tanks, development of new instruments for night flying, and improvements in design. They submitted to headquarters detailed reports on their discoveries, and they shipped parts, engines, and even whole planes back to rear areas for testing. The resulting intelligence was disseminated as quickly as possible to U.S. fliers, who were thus

provided with an accurate analysis of the capabilities of the new types of enemy aircraft they were likely to meet. When enemy airfields were captured, air technical intelligence officers were among the first on the scene.

NAVAL INTELLIGENCE TODAY

On 1 July 1967, the Office of Naval Intelligence (ONI) was reorganized and renamed, becoming the Naval Intelligence Command (NIC). NIC is headed by the Commander of NIC, or COMNAVINTCOM, who directs and manages all activities of NIC to ensure fulfillment of the intelligence, investigative, and security requirements and responsibilities of the Department of the Navy. Headquarters is located in the staff organization, JOPNAV, Office of Naval Intelligence (OPIN), at the Director of Naval Intelligence (DONI). A DONI is responsible for performing the intelligence functions both for the Naval Operations who is required by Navy Regulations to collect, evaluate, and disseminate all types of intelligence, information, and data within the naval establishment.

NIC FIELD ACTIVITIES

In addition to the headquarters command, NIC is organized into three major categories: the Naval Investigative Service (NIS), Intelligence Processors (INP), and the Naval Intelligence Support Center.

Naval Investigative Service (NIS)

NIS was established as a staff function of NIC in 1966, with its headquarters in the Washington, D.C., area. It is divided into Naval Investigative Service Offices (NISOs) that are regionally located from Europe and the U.S. to Japan. These offices are further divided into Naval Investigative Service Resident Agencies (NISRA's). Both the NISOs and NISRA's are located in areas of high Navy and Marine Corps

concentrations such as Norfolk, Pensacola, and San Diego. NIS also has a Special Agent Afloat program that places agents at sea for extended tours on carriers and cruisers.

FUNCTION OF NIS. NIS is the counterintelligence and investigative arm of the Navy. Its jurisdiction and responsibilities are carefully defined by higher authority. NIS doesn't, for example, investigate civilians unless they have a DOD connection. Neither does NIS initiate criminal investigations on its own; rather, NIS responds to command requests, and reports back to the command. The command takes whatever action it considers appropriate, based on the results of the investigation.

Personnel security investigations were transferred from the three services to the Defense Investigative Service (DIS) in 1972, leaving NIS free to concentrate solely on criminal and security investigations. Matters investigated must be directly related to the Navy and Marine Corps and must be serious enough to be felony offenses punishable under the Uniform Code of Military Justice. Typical NIS investigations involve arson, assault, homicide, rape, blackmailing, espionage, sabotage, compromise of classified information, and narcotics violations. Narcotics investigations alone account for a large part of the NIS workload.

Occasionally, a number of minor related incidents are investigated because their combined impact on morale is serious. For example, a large number of locker thefts aboard ship or a series of threatening telephone calls to the wife of a sailor at sea will be investigated.

Besides solving crimes, NIS also helps prevent them. Headquarters for NIS gathers and analyzes data from agents' reports, DIS, police departments, and other sources. Information gleaned from this data can show potential trouble spots that concerned commands can be warned about.

NIS serves the Navy in other ways. As part of the investigative process, it functions as the liaison point between the Navy and all federal law enforcement agencies, as well as state and

local police and foreign agencies. NIS agents also provide protective services for high-ranking dignitaries, make presentations to naval personnel concerning drug abuse, foreign intelligence activities, and methods of safeguarding sensitive information.

Other NIC Support Activities

The Naval Intelligence Support Center (NISC) and the Naval Intelligence Processing System Support Activity (NIPSSA) are located in the Washington, D.C., area and provide NIC with support in the fields of research and development; test and evaluation of equipment, materials, and techniques, and automatic data processing.

THE INTELLIGENCE COMMUNITY

Naval Intelligence is only one facet of the overall national intelligence organization. The intelligence community is a composite of agencies and individuals, each of whom contributes unique talents and energies toward the production of a coordinated end product: intelligence for both departmental and national use.

The National Security Act of 1947, as amended, authorized creation of a National Security Council (NSC) and a Central Intelligence Agency (CIA). The NSC, located within the Executive Office of the President, advises the President with respect to integration of domestic, foreign, and military policies relating to national security. Under NSC, the CIA coordinates intelligence activities of all Government departments and agencies in the interest of national defense. The Director of Central Intelligence is the President's principal intelligence adviser.

Other members of the intelligence community include the State Department's Bureau of Intelligence and Research, the National Security Agency/Central Security Service, the Federal Bureau of Investigation, and of main concern to this discussion, the Defense

intelligence Agency and intelligence components of the Armed Forces, which, in the Navy, is the Naval Intelligence Command.

DEFENSE INTELLIGENCE AGENCY

Each of the armed services has its own intelligence organization, but there are many areas of interest where intelligence requirements of two or more military departments coincide and where it is feasible to have a coordinating agency (1) for more effective management of DOD intelligence resources, and (2) to eliminate duplicated intelligence functions and facilities.

With this in mind, the Defense Intelligence Agency (DIA) was established by DOD directive in 1961 under provisions of the National Security Act. The chain of command for DIA runs from the Secretary of Defense through the Joint Chiefs of Staff to the Director. In general, functions of the military departments that were absorbed by DIA were basic in nature and of interest to more than one service. As examples, intelligence on landing facilities is of interest to both the Navy and the Army Transportation Corps, and consequently is now processed by DIA; and in the area of intelligence training, the Defense Intelligence School is jointly staffed by the military departments, which utilize their services on a continuing basis.

Under overall control of SECDEF, the DIA organizes, directs, and manages DOD intelligence resources assigned to or included within the DIA, and coordinates intelligence functions retained by or assigned to the military departments.

Defense Attaché System

The mission of a military attaché in a foreign country is to overtly (openly) collect and report military and politico-military intelligence information and to represent the DOD as required.

Prior to mid-1965, each military department maintained its own attaché system, the service

representative "sawmowing" reports only to his own department. In a country where more than one armed service had an attaché, there was an inherent duplication of effort concerning intelligence of dual-service interest.

To eliminate duplicate reporting on the same topic by two or more attachés assigned to the same post to promote more efficient intelligence collection and reporting the Defense Attaché System (DAS) was established in July 1965 as an organizational function of DIA.

All military personnel assigned to attaché posts are a part of the DAS. The senior Armed Forces attaché on a diplomatic post is the Senior Defense Attaché. Other officers are designated as U.S. Naval Attaché, U.S. Army Attaché, etc. Military personnel on the post, regardless of service affiliation, are subject to supervision and coordination control of the Senior Defense Attaché. Each service attaché collects intelligence of interest to DOD agencies in general and to his own military service in particular.

Defense Intelligence School

The tendency toward more joint effort within our own Department of Defense and the numerous defense treaties and alliances to which we are a signatory power indicate an indefinite requirement for flexible intelligence doctrine and experienced intelligence personnel who can effectively serve with personnel of other services and nations. In peacetime this need normally finds expression in staff training, research and development, and intelligence activities. Naval intelligence officers often are assigned duty in this broad area and in particular to billets with the Defense Intelligence Agency.

The post-World War II period has been a time of marked international tension. Now, more than ever, it is essential that U.S. interests be upheld and that the security of the Nation be maintained by a strong military establishment, including a national intelligence service capable of keeping the Government informed of the capabilities and intentions of all foreign powers.

The U.S. Navy is one important component of the Department of Defense. Concepts of naval power are being constantly kept abreast of new weapons and conditions; traditional concepts of naval intelligence are being revised accordingly. The Defense Intelligence School (DIS) in Washington, D.C., provides basic,

advanced, strategic, attaché, and nonresident training for personnel of all military services. Postgraduate training in all types of intelligence is provided for carefully selected officers. In addition to military personnel, the DIS is open to qualified persons from other governments and agencies.

CHAPTER 28

RESEARCH AND DEVELOPMENT

The research and development effort in the Department of Defense (DOD) and its military branches is big business in terms of personnel, money and materials. The scientific and military strength of the United States depends heavily on the success of a comprehensive research program.

DOD manages the research and development programs for all major military hardware/weapon systems. A major military hardware/weapon system is one having an estimated research, development, test, and evaluation (RDT&E) cost in excess of \$50 million or an estimated production cost in excess of \$200 million. To a lesser degree, DOD also manages the scientific study in fields related to long-term national security needs. Fields of study include the engineering, environmental, biological-medical, and behavioral-social sciences.

NAVY RDT&E PROGRAM

All the Navy's systems commands have research and development programs and are allocated RDT&E funds to obligate to their field activities; other government agencies, private industry, universities, and naval laboratories.

The Navy's R&D program spans virtually all the scientific disciplines and involves technology in every field. Development programs include almost every type of equipment and weapon in the national arsenal.

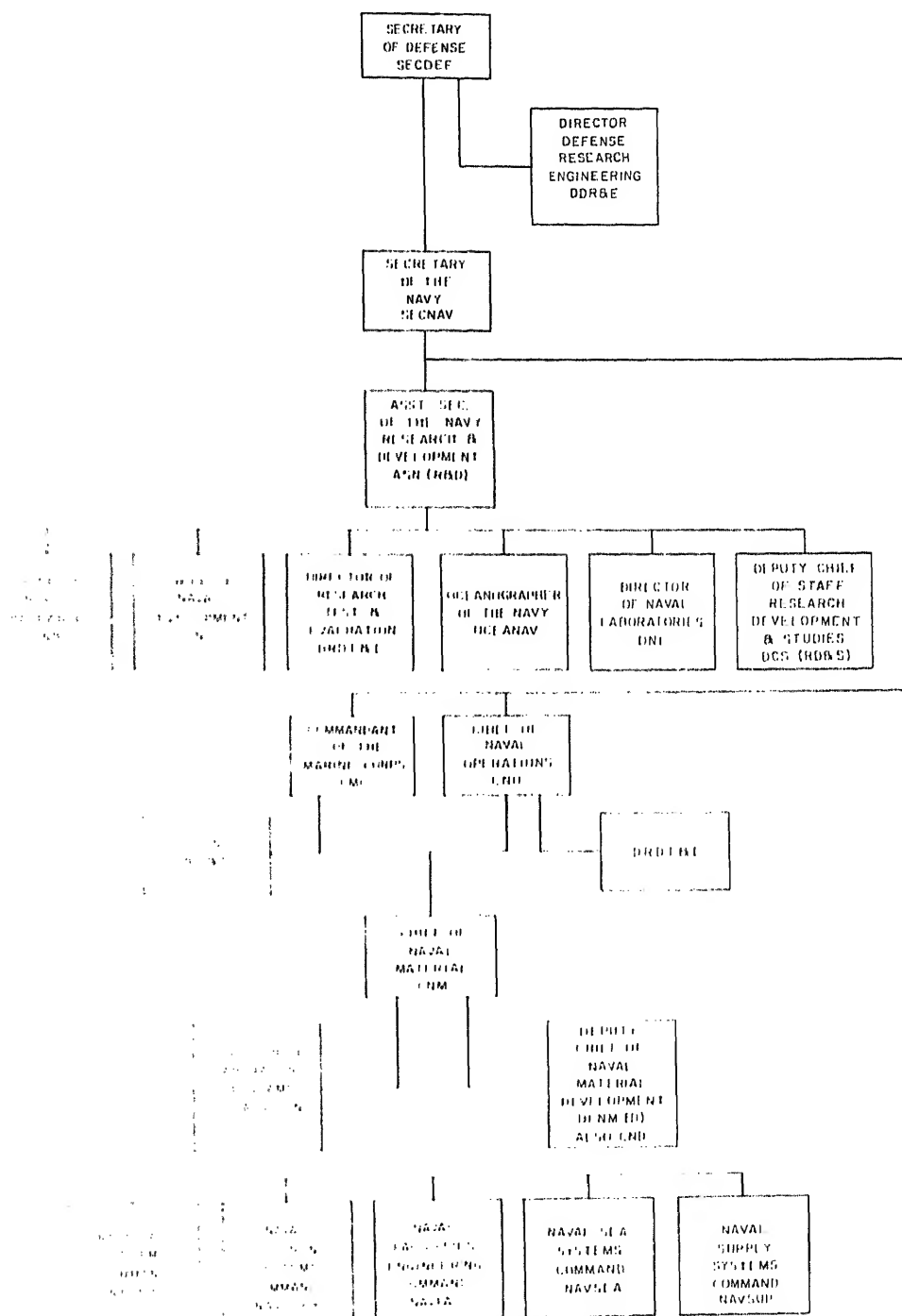
At the top of the Navy RDT&E organization, the Secretary of the Navy exerts policy control. The Assistant Secretary of the Navy for Research and Development (ASN for

R&D is responsible to SECNAV for management and control of Navy ED&E matters, including technical and program questions. The principal advisor to SECNAV is to the ASD/R&D for overall R&D matters. Chief of Naval Research, D. C. Calkins, is the Naval Development and Research Director, Chief of Naval Material for Development, and the Chief of Naval Material for Development has similar capacity in matters relating to the supported research.

The ODDs of the 1990s have been largely restricted to the role of the "strategic" force, with the FADs serving as the "tactical" force, commands and control, and the "support" force. Research in the 1990s has shown that the "tactical" force could not be "strategic" in the sense that it could not project power beyond the "tactical" zone. This shows the "strategic" force to be the FAD, not the "tactical" force.

Public Law 101-508, 104 Stat. 1328, 1990, amended the National Environmental Policy Act of 1969, 42 U.S.C. § 4370, to require the Department of the Interior to prepare an Environmental Impact Statement for the proposed construction of a hydroelectric plant on the Snake River in Idaho. The National Environmental Policy Act of 1969, 42 U.S.C. § 4370, requires the Department of the Interior to prepare an Environmental Impact Statement for the proposed construction of a hydroelectric plant on the Snake River in Idaho.

[illegible]



... clearly defining the structure underlying the RDAI program hierarchy.

... interactions between the officials and organizations involved in

he Chief of Naval Operations issues general specific operational requirements for forms and hardware, based on the stated requirements of the Operating Forces. These are fed to the "warfare desks" under the Director of Research Test Development and Evaluation (DRDT&E), which, in turn, generate general and specific operational requirements of the fleet for new hardware and weapons. The DRDT&E is responsible for the coordination and issuance of the operational requirements for equipments and weapons which come from the warfare desks. In addition, he coordinates and integrates the overall Department of the Navy operational RDT&E program for CNO to insure that the effort is continuously responsive to long-range objectives, operational requirements, fiscal limitations, and advancing technology. The Director of Research Test Development and Evaluation (DRDT&E) also oversees the ASN(R&D) concerning the RDT&E program of the Navy.

Through the medium of operational requirements, the Director of Research Test Development and Evaluation (DRDT&E) has much to do with directing the efforts of the various commands, bureaus, and offices, even though there is no direct line of authority from him to the technical and procurement commands except through the Chief of Naval Operations.

The agencies which develop and procure the equipments and weapons required by CNO for the Operating Forces are the Naval Material Command, the Office of Naval Research, and the Marine Corps. The systems commands under the Chief of Naval Material perform a dual function; i.e., they manage and conduct research and development efforts, and they produce the equipments and weapons required by the Operating Forces. In these capacities, they may act as contracting agents for the Navy if the research, development, or production is performed by industry or private institutions; or they may act as management agents if this work is performed at laboratories or field activities under their cognizance. Overall Navy coordination and review of the RDT&E program is through ASN(R&D) and ultimate responsibility rests with the Secretary of the

EARLY NAVY RESEARCH

About the middle of the 19th century, the Navy established its first testing laboratories to keep pace with civilian inventions and the general progress of technology. Commander Charles Henry Davis, Superintendent Alexander Bache of the Coast Survey, and Dr. Joseph Henry of the Smithsonian Institution were members of the "permanent commission" set up by Secretary of the Navy Gideon Welles to advise the department on scientific matters. The success of this commission led directly to the chartering by Congress in 1863 of the National Academy of Sciences to provide such services to all departments of the Government.

Among early steps taken by the Navy to organize scientific effort was the installation of a device for testing lubricating oils at the New York Navy Yard in 1866, the establishment in 1869 of a naval torpedo station at Newport, R.I., to develop and test torpedoes and their equipment, explosives, and electrical devices, and the opening of an experimental model basin at the Washington Navy Yard in 1890. Since moved to Carderock, Md., the David W. Taylor Naval Ship Research and Development Center, formerly called the David Taylor Model Basin, is now the world's finest research institution for the development of optimum hull forms and the gathering of much needed information about the behavior of ships in water. It has also been used in research on such phenomena as ship construction and ship propulsion. It has been the scene of significant work in aerodynamics and mechanics, with related areas of applied mathematics and the engineering sciences.

Individual naval officers, without any formal training in science, supported the contributions that were made toward the solution of naval problems. Lieutenant M.F. Maury, USN, as Superintendent of the Depot of Charts and Instruments established in 1830, stimulated research in astronomy, geodesy, mineralogy, and oceanography. Rear Admiral John A. Dahlgren, often referred to as the father of modern gunnery, built the Navy's first big guns, advocated the development of the star gunights, and insisted that naval guns be tested. In the early 1890s Lieutenant William S. Sims made a thorough investigation of European

gunnery practices. Subsequently, he was extraordinarily successful in applying the scientific method to the development of gunnery training and fire control. Lieutenant Bradley A. Fiske introduced the range-finder, telescopic sights, and director fire into U.S. Navy practice, and advocated the development of the torpedo plane.

RESEARCH IN WORLD WAR I

After Europe had gone to war in 1914 but before the United States entered the conflict, the Navy Department, keenly aware of the rapid changes being made in naval warfare, took steps to put into effect a completely organized program of naval research and development. To this end, Secretary of the Navy Josephus Daniels created the Naval Consulting Board, popularly known as the Inventions Board, in 1915 as a means of mobilizing the Nation's technical skills. Under the chairmanship of Thomas A. Edison, it was made up of two leaders from each of eleven outstanding technical groups and scientific societies of the country. In addition to serving the Navy in the capacity for which it had been created, the Board organized the Nation's Industrial Preparedness Campaign.

In like manner the National Academy of Sciences set up the National Research Council as a working organization by which the resources of different groups of scientists could be brought to bear in the solution of the major scientific and technical problems of the War and Navy Departments. In this way, research of the greatest importance was undertaken in such fields as submarine detection, gun ranging, and naval camouflage.

Both the Naval Consulting Board and the National Research Council contributed to the development of antisubmarine warfare devices, the successful development of which had been made imperative by the prowess of Germany's submarine campaign. From the Consulting Board came the design for a nonricocheting shell, from the effects of which a submarine could not escape even if partly submerged. Another device produced by the same

organization was the hydrophone, by which the noise of a submarine's propellers could be heard at some distance, the sound waves being transmitted by the water. This equipment enabled its user to determine the direction and the distance of the boat spotted. As worked out at New London, Conn., the hydrophone played a significant part in winning the first Battle of the Atlantic.

In its race to defeat the Kaiser's submarines, the Navy also developed the "antenna mine," used so effectively in the great North Sea mine barrage to restrict U-boat operations. The Navy took steps to protect both merchant ships and its own vessels against submarine attack by the development of "razzle-dazzle" camouflage. Camouflage supposedly contributed to the difficulty of estimating target course and, hence, decreased the accuracy of gun and torpedo fire.

RESEARCH BETWEEN WORLD WARS

As has been seen, research had been greatly stimulated during World War I, especially in the field of naval weapons and countermeasures. As a result, immediately after the end of that conflict, the U.S. Navy undertook an expansion of its research facilities. Outstanding in this program was the establishment of the Naval Research Laboratory in 1923 (figure 28-2) and the conversion of the Mine Laboratory into the Naval Ordnance Laboratory in 1929.

In 1915 Thomas A. Edison, as Chairman of the Naval Consulting Board, urged the creation of a laboratory to be devoted entirely to naval research. Congress voted funds for this purpose the next year, but it was not until 1923 that work was completed and the Naval Research Laboratory (NRL) was formally opened at Anacostia, D.C. Its operations during the next 2 decades contributed greatly to preparing the Navy for its effective participation in World War II; in particular, NRL provided an accumulated body of knowledge on which U.S. scientists and technologists were able to draw for development of radar, the proximity fuze, and the atomic bomb.

Commenting only on the background work leading up to radar, we find that scientists at



134.113

Figure 28-2.—From a modest beginning in 1923, these are the offices and laboratories of the Naval Research Laboratory as they appear today.

NRL began experimenting with radio direction-finding equipment almost as soon as their laboratories were opened; by April 1937 the Navy had radar working over saltwater from the old four-stack destroyer *Leary*.

The Naval Ordnance Laboratory (NOL) likewise conducted valuable scientific investigations during the period between the wars. Established as the Mine Laboratory in 1918, its original assignment focused principally on the development of an improved type of mine-firing device. Subsequently renamed Naval Ordnance Laboratory, it now conducts an extensive program covering research in and the development of torpedoes, mines, depth charges, mine-launching equipment, fuzes, pyrotechnics, ordnance parachutes, demolitions, guided missiles, plastics, guns, armor, and minesweeping equipment.

With the advent of the airplane, a new field of engineering and technology was opened. The David Taylor Model Basin undertook the construction and operation of one of the first wind tunnels in the United States for studying the aerodynamics of flight, but it soon became apparent that additional facilities and arrangements for aeronautical research were badly needed.

The Naval Aircraft Factory provided aeronautical research during the war but actually did some of its most important work during the peace which followed. It was first set up at the Philadelphia Navy Yard in 1917. In 1921 the Naval Aircraft Factory began work on experimental aircraft and made significant contributions in the field of aerodynamics. It was a group of enthusiastic American naval officers at the Naval Aircraft Factory who

advocated the development of guided bombs or planes years before the Germans were to make the first recorded combat use of radio-controlled missiles.

When World War II began in September 1939 and the United States launched its program of national defense, the Navy had already laid the foundations of scientific research for its growing strength.

RESEARCH IN WORLD WAR II

World War II marked the largest mobilization of scientists in the waging of war that the world has known. It was the physicist working in his laboratory who developed the acoustic fundamentals on which were based the antisubmarine devices that helped the U.S. Navy to defeat the U-boat. The mathematician working on differential equations and mathematical formulas helped create the computing devices for the gun directors and airborne torpedo directors that played so important a part in the attainment of final victory.

Realizing that superiority in new weapons depended on scientific knowledge, President Roosevelt in June 1941 established the Office of Scientific Research and Development (OSRD) to coordinate and, where necessary, to supplement scientific research and development work relating to the war. The Nation thus set up the machinery to enlist its scientists in the fight against the enemy.

The Navy immediately established an Office of Coordinator of Research and Development which handled the necessary Navy liaison with OSRD. The Navy was ready and eager to work with OSRD and was able to offer to this organization its facilities and experience in research and development programs.

The application of the products of science to warfare is a slow process. It takes years for a new weapon to pass through the successive stages from the first idea to research, development, testing, quantity production, and finally actual use. The groundwork already laid by naval research workers saved priceless time.

Examples of the Navy's preparedness for war through science are given by Dr. James P. Baxter in *Scientists Against Time*, his Pulitzer prize-winning account of the OSRD's activities during the war. A few quotations are presented here.

- **Fire Control.** The Navy "had gone a long way in developing fire control . . . Our Navy's systems of fire control were the best in the world."

- **Proximity Fuze.** In discussion of the development of the proximity fuze, which Dr. Baxter ranks "among the most extraordinary scientific achievements of the war," he states, "When the OSRD was established, the problem of proximity fuzes had already been under consideration for some time in the United States Navy."

- **Undersea Warfare.** "The United States Navy started the war with well-developed echo-ranging gear . . . Between the two wars the Naval Research Laboratory had made notable contributions to its development."

- **Radar Countermeasures.** "At the Naval Research Laboratory, where radar had been under development for years, the possibilities of countermeasures had also been explored. Prior to our entry into the war NRL had developed a wide-band crystal receiver to pick up enemy transmissions and determine their frequency, and had under development a receiving set to cover the range from 50 to 700 megacycles."

- **Atomic Bomb.** As early as 1939, the Chief of the Bureau of Engineering allotted \$1500 to the Naval Research Laboratory for experiments on pilot plants for the concentration of uranium-235. This was the first and, at the time, the only Government work on the project which grew into the atomic bomb development. Later, when the Manhattan Project coordinated all work on the bomb, a thermal diffusion plant that was needed for the partial separation of U-235 was built along lines which Baxter reveals "had been worked out by R. Gunn and P.H. Abelson at the Naval Research

Laboratory and tested in pilot plants built by the Navy at Anacostia and Philadelphia.”

Years of systematic research paid dividends when in 1940 Congress voted a 70% increase in naval construction (the Two-Ocean Navy Bill). The power of this fleet lay in the new capabilities and equipment with which previous research had endowed it. The new fleet was fast. For instance, in battleship construction, by adopting a relatively narrow beam and light armor, more powerful engines were capable of driving the vessel at speeds up to 33 knots. The new fleet was superbly equipped. It could maintain itself longer at sea and cope with land-based airpower and submarines while thousands of miles from home and close to enemy bases. With radar, the new fleet could scan the ocean for ships and the skies for aircraft at all times of day or night regardless of weather. The new fleet was well protected. Destroyers and destroyer escorts, with their sonar gear and their greatly improved antisubmarine ordnance, protected the fleet against enemy submarines; and planes of the antisubmarine patrol, equipped with radar, rockets, and better depth charges, increased protection manyfold.

At Quonset Point (R.I.) Naval Air Station during the war, scientists were working on the magnetic anomaly detector, an important aid for underwater detection; building hundreds of pre-production types of equipment; installing them in planes and blimps; and making observational flights.

At the Naval Ordnance Test Station, hidden in the wastes of the Mojave Desert in California, the Navy's high-velocity aircraft rockets, “Tiny Tim” (11.75 inches) and “Holy Moses” (15 inches), were being tested under extremely hazardous conditions. Armitage Field at this station is a memorial to Navy Lieutenant Armitage, one of the men who lost his life trying out new equipment before it was deemed safe for the fleet.

At New London, Conn., and San Diego, Calif., scientists were studying underwater acoustics, to develop more effective aircraft, submarine, and surface craft listening equipment and other devices.

At the Naval Air Station, Floyd Bennett Field, N.Y., flight tests were conducted with the “Bat,” the first completely automatic airborne target-seeking missile to be used in warfare.

At Alamogordo, nuclear physicists were helping Rear Admiral Parsons ready the atomic bomb for its debut at Hiroshima.

The naval scientists' laboratories were located in many corners of the United States and their products reached points thousands of miles away. Their close watch on the fleet was continued throughout the war.

Even the enemy was forced to pay tribute to the American scientist. On 14 December 1943 Germany's Admiral Doenitz wrote—

“For some months past the enemy has rendered the U-boat war ineffective. He has achieved this objective, not through superior tactics or strategy, but through his superiority in the field of science.”

POST-WORLD WAR II RESEARCH

At the close of World War II, the Navy faced the perplexing problem of realigning its massive research and development complex to a peacetime economy. With the lessons learned in the war clearly in mind and realizing the Navy's technological future might depend on the continued existence of these facilities, naval leaders set about creating within the Navy itself the capacity for continuing scientific innovations, material, development, and technological progress.

Laboratories which had been devoting their wartime efforts to naval problems and which, heretofore, had been under the National Defense Research Committee were welcomed into the family of naval shore activities. The Naval Electronics Laboratory, the Underwater Sound Laboratory, and the Radiological Defense Laboratory are a few added to the group of research and development facilities which finally totaled over 40.

To meet the needs of their parent bureaus and offices, these laboratories embarked on programs running the gamut of scientific and engineering interests. With the production programs of the Navy at a virtual standstill, research was undertaken to extend the knowledge required for specific technological purposes, and efforts were made to apply such knowledge to broader development needs. This applied research, stressing development of new weapons and equipment, formed the bulk of the peacetime naval laboratory programs.

From 1942 onward, the Naval Medical Research Institute at Bethesda, Md., led the way in a comprehensive medical research program. Several other research units were established ashore and abroad to study exotic diseases, test new supplies and equipment, and investigate medical problems confronting submariners and aviators. Their findings contributed increasingly to the effective medical support of combat operations. Questions relative to defense against nuclear, biological, and chemical warfare were studied, as well as the psychological adjustment of servicemen to military life. The postwar bone and tissue bank at Bethesda pioneered in the preservation of bones and various tissues valuable in surgery to save and lengthen life. By 1960, ways of preserving whole blood for later clinical use had been discovered and successfully tested. Also, the medical problems of flight in spaceships were under investigation.

Although research and development at industrial concerns was greatly reduced at the close of World War II, the bureaus continued to augment the efforts of their laboratories as appropriate through contacts with industrial laboratories. These two programs have assured the Navy of a constant flow of the latest engineering developments.

Naval leaders realized, however, that these resources, alone, were not enough to assure the long-range technical progress necessary for new weapons, equipments, and materials. They cautioned that the Navy must never again leave to chance the discovery of fundamental scientific knowledge. Consequently, the Navy embarked on a program in the basic sciences which was to become the technical foundation

for the Navy's postwar research and development effort.

OFFICE OF NAVAL RESEARCH

In May 1945, Secretary of the Navy Forrestal established the Office of Research and Inventions to assure the Navy a well-coordinated research effort in every field of basic science. Renamed and given statutory permanence by Congress in August 1946, the Office of Naval Research was charged with planning and conducting research in conjunction with and support of the extensive applied research and engineering development programs of the Navy. Its establishment was described by Secretary Forrestal as—

... "a Navy Department insurance investment in permanent research ... expected to provide a revolving fund for progress in research, such as that which has made possible such spectacular developments as the atom bomb, radar, rockets, jet aircraft, and penicillin."

Since the principal source of fundamental scientific knowledge had been, traditionally, the university research laboratory, and the experience and lessons of World War II showed a need for a mechanism whereby university scientists could continue their participation in the solution of the Navy's most difficult problems, ONR instituted what was for a time the largest peacetime research program ever supported by a Federal agency at educational and nonprofit institutions. Through this program the Office of Naval Research set an outstanding example of effective and highly beneficial Government-sponsored research.

In the years immediately following its establishment, the contract research program of ONR advanced the search for new knowledge in those fields of science and engineering vital to naval needs and national security. Nuclear physics, chemistry, electronics, hydrodynamics, aerodynamics, oceanography, mathematics and computing, propulsion, physiology,

microbiology, psychophysiology, and the behavioral sciences were but a few of the fields in which the Nation's renowned scientists were conducting research for the Navy at virtually every well-known scientific laboratory in the country.

NAVY'S ONGOING RESEARCH PROGRAMS

The Navy long-range research programs that are of current and continuing interest include oceanography, space, nuclear energy, solar energy, laser energy, weather, communications, ship and aircraft design, and weapon design. The list goes on and on. Since this chapter cannot cover all aspects of these efforts, the main emphasis is placed on the programs under the Office of Naval Research (ONR) and the Office of the Oceanographer of the Navy.

Today, a fairly large portion of ONR's funds for research are allotted to university laboratories. Research performed by these laboratories is mostly basic, or pure, research. Many other contracts go to industrial laboratories, usually for applied research on specific projects. Any scientist or laboratory may receive a contract if the contemplated research shows promise and fits into the mosaic of the Navy's interest.

In addition to providing the knowledge to make fresh approaches to naval problems, the Office of Naval Research makes other contributions to the Nation's scientific stature. Through its research programs, thousands of graduate students obtain advanced degrees by participating in important research projects. Nuclear accelerators, special facilities for low-temperature physics, newly developed electronic computers, small supersonic wind tunnels, and a host of less glamorous but equally important scientific instruments have been added to the Nation's technical arsenal.

NAVAL RESEARCH LABORATORY (NRL)

A discussion of the Navywide character of ONR's research program would not be complete

without mentioning the work conducted in its own laboratories. Under ONR, the Naval Research Laboratory at Washington, D.C., the Naval Biomedical Research Laboratory at Oakland, Calif., and the Naval Arctic Research Laboratory at Barrow, Alaska, contribute numerous advances in the physical sciences and in engineering development. Of these laboratories, NRL is considered the Navy's corporate laboratory. Much of NRL's program is conducted at the specific request and with the direct support of the Navy's systems commands. For example, in fiscal year 1975, approximately 19.9% of NRL's funding for research came from ONR, while approximately 39.4% came from NAVELX (Naval Electronic Systems Command).

NRL's Research Program

A good indication of the breadth of work conducted at NRL is found by examining the four broad functional areas of its research department.

ELECTRONICS.—The electronics area has five divisions: electronics technology, radar, communication sciences, optical sciences, and tactical electronic warfare. These divisions work to extend the knowledge and technical applications of the electromagnetic spectrum. The effort includes research and development in the areas of solid-state devices, surface physics, and microwave techniques; radar and radar target characteristics; communication systems, including instrumentation, signal exploration, and information processing; optical sciences, with studies in the areas of quantum optics, laser physics, laser-matter interaction, atmospheric propagation, holography, optical warfare, optical radar, and optical systems; and tactical electronic warfare techniques and systems, including countermeasures and counter-countermeasures. In the area of electronic warfare, NRL serves as the Navy's lead laboratory.

MATERIALS AND GENERAL SCIENCES.—This area is divided into two laboratories: structure of matter and chemical physics. It has four divisions: chemistry,

engineering materials, material sciences, and radiation technology. The chemist, the metallurgists, and the solid-state, optical, and nuclear scientists in this area perform basic and applied research on the mechanical, electrical, thermal, magnetic, optical, and nuclear properties of matter. They also develop components, devices, and systems based on the phenomena and principles of the areas of research involved.

In support of a broad program in nuclear and atomic sciences, the radiation technology division at NRL operates a 7-McV sector focusing cyclotron, a 60-McV electron linear accelerator, a 5-McV Van de Graaff generator, and several smaller accelerators and radiation sources. Examples of projects made possible through the use of this equipment include radiation damage studies, use of neutron beams for cancer therapy, radioisotope production, and ion implantation to modify devices and materials. NRL's cyclotron building and control room are shown in figures 28-3 and 28-4. Note that all equipment is monitored and controlled from the control room.

SPACE SCIENCE AND TECHNOLOGY.—This research area of NRL includes a cosmic-ray

physics laboratory, a spacecraft technology center, a solar radiation (SOLRAD) project, and three divisions: space science, plasma physics, and space systems. Scientists in this area conduct basic and applied research in upper-air physics, astronomy, and astrophysics to improve naval communications, navigation, detection and surveillance. As a result of its research in this area, NRL has been recognized as the Navy's leading laboratory in space technology. This portion of NRL is also involved in both the theoretical and experimental research of plasma physics, including investigating the physics of fusion to develop controlled thermonuclear power sources. The SOLRAD project was established to support the NAVAIR exploratory development task in solar X-ray monitoring and specifically to design, construct, test, evaluate, and provide launch support of SOLRAD satellites; to track, command, and acquire satellite telemetry; and to analyze solar emission data for scientific and application purposes.

OCEANOLOGY.—The oceanology area has four divisions: acoustics, underwater sound reference, ocean sciences, and ocean technology. These divisions conduct research at sea and in the laboratory in the fields of underwater

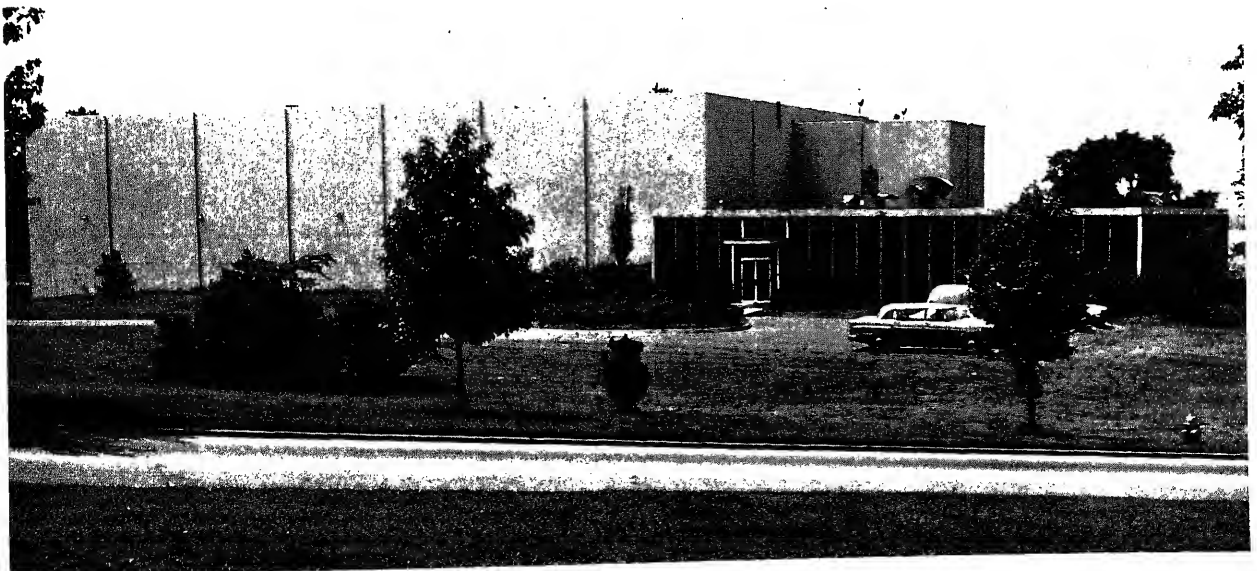


Figure 28-3.—The NRL cyclotron building.

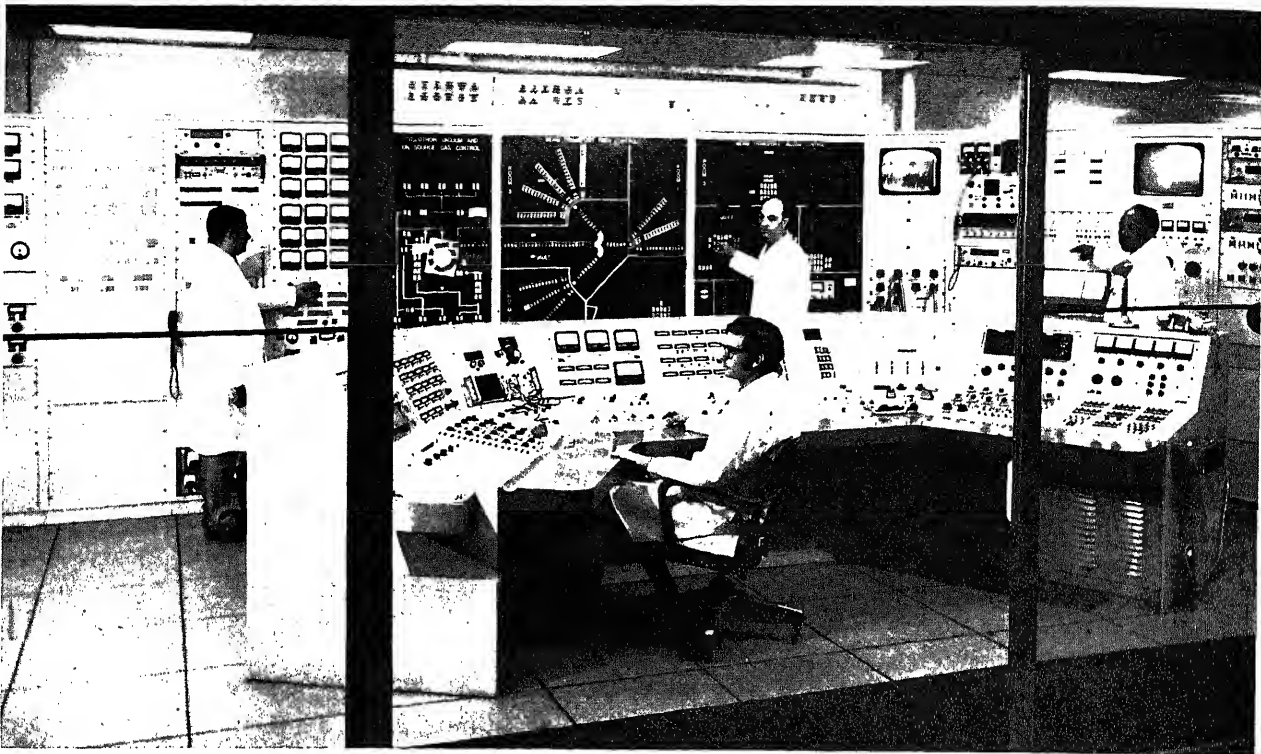


Figure 28-4.—Control room for NRL's cyclotron.

134.209

acoustics, oceanography marine geophysics, atmospheric physics, and ocean engineering and technology. Subjects of investigation include antisubmarine warfare, acoustic propagation and scattering, ambient noise in the ocean, signal processing, marine and atmospheric pollution, instrumentation systems for deep ocean search and inspection, and methods of design and installation of ocean structures and apparatus. NRL, with its underwater sound reference division located in Orlando, Fla., serves as a focal point in the Navy for standardization of underwater sound measurements and assumes a major responsibility for research and development in undersea acoustic surveillance.

In support of NRL's oceanographic program, several research vessels are available. One, the *USNS HAYES* (T-AGOR-16) is the Navy's most advanced and first departure from conventional hull design in its oceanographic ship program. The *Hayes* (figure 28-5) is a 246-foot-long

catamaran commissioned in 1971. It is under the technical direction and funding control of NRL, and under the operational control of the Military Sealift Command (MSC).

The most distinctive features of the *Hayes* are the parallel hulls, a centralized ship control system, and large laboratory spaces. Her dual-hull design provides a stable platform for ocean research, a large amount of open deck area for scientific equipment, and a space between the hulls for lowering and raising research instruments. The deck areas and interior spaces are designed to accommodate facilities for biological and chemical analyses, mechanical and electrical repairs, data processing, communications, support machinery, and storage. In addition, the decks are outfitted with tiedowns and power receptacles for installation of portable equipment vans.

Although the *Hayes* operates primarily as a surface platform for experiments in underwater

acoustics, her facilities make her an ideal seaborne base for conducting an even wider range of marine research spanning the physical, geological, chemical, biological, and meteorological aspects of oceanology.

Another oceanographic research vessel that supports NRL projects, the *USNS Mizar* (T-AGOR-11), is of more conventional design. It was the *Mizar*, with its specially designed towed television and camera apparatus that discovered and helped photograph the wreckage of the Navy submarines *Thresher* and *Scorpion*.

OCEANOGRAPHY

Oceanographic research has been going on within ONR since about 1946. Over the years, as

the importance of this new field of endeavor became known, numerous segments of the Government and the scientific community became directly involved. Today, the Nation's oceanographic program is being carried out by many Federal agencies, each in need of different types of information to accomplish its basic mission. There is as yet no unified Federal structure in the field of oceanography such as we have in the National Aeronautics and Space Administration (NASA).

The Navy received almost one-fourth of the national oceanographic funds for fiscal year 1976. Most of these funds support research by oceanographic institutions, universities, and the Naval Oceanographic Office.

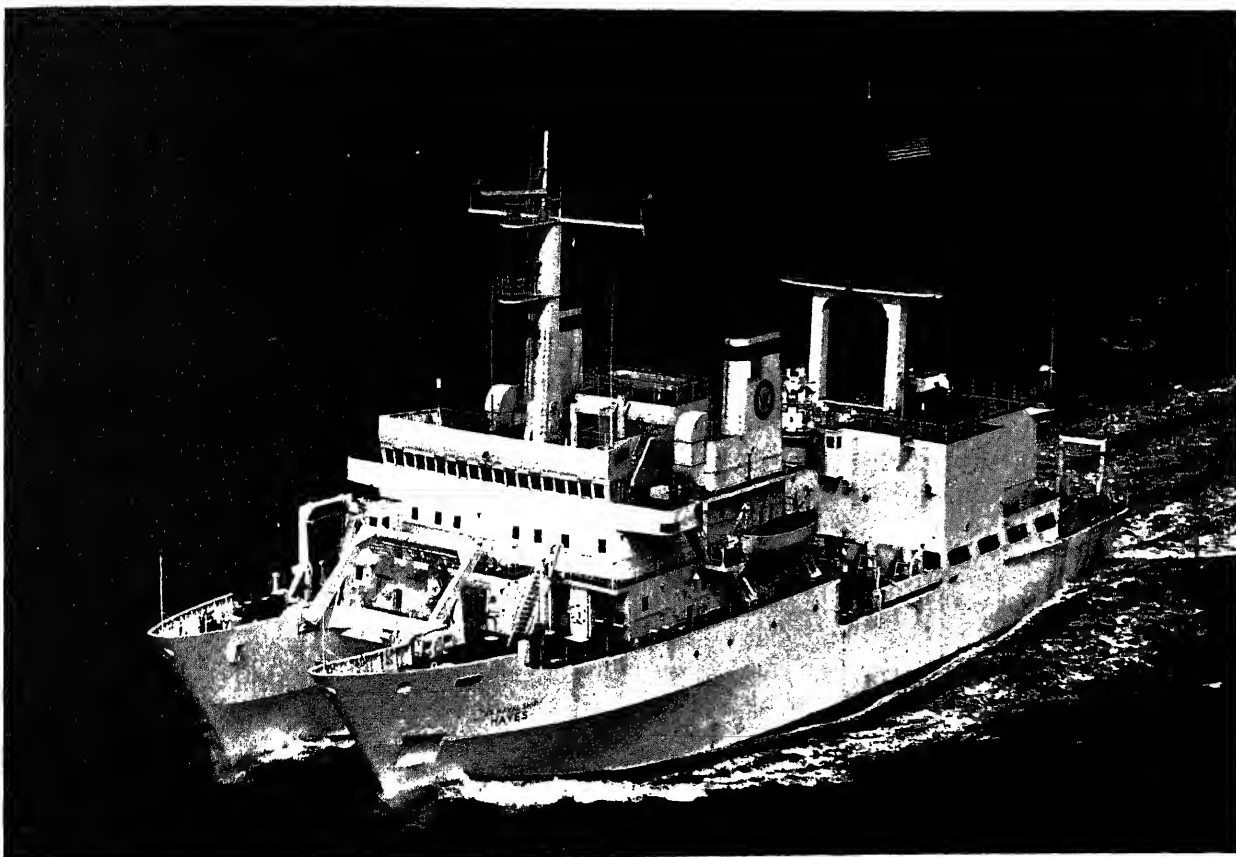


Figure 28-5.—The USNS Hayes (T-AGOR-16).

Naval Oceanographic Program

The Oceanographer of the Navy is the Naval Oceanographic Program director for the Chief of Naval Operations, under the policy direction of the Secretary of the Navy, with policy direction for research through the Assistant Secretary of the Navy (Research and Development). All national facilities, centers, and missions of the National Oceanographic Program assigned to the Navy are managed and administered by the Oceanographer of the Navy.

The Navy Oceanographic Program includes the science, technology, and engineering operations, and those personnel and facilities associated with each. Additional support is provided, where possible, to all related national objectives. The Naval Oceanographic Program can be subdivided into the following four major areas:

Ocean science: to advance the knowledge of the physical, chemical, biological, and geological nature of the world's oceans.

Ocean engineering and development: to provide support to naval operating forces whose purpose is to maximize the use of the oceans.

Oceanographic operations: to provide oceanographic data, service, and operational support for military uses, and support for operations involving underwater search and rescue, recovery, salvage, emplacement, facilities, and polar research.

Environmental prediction: to provide forecasting of certain oceanographic-environmental conditions at the air-sea interface and in the water column.

The primary (military) objective of the Navy's Oceanographic Program is to advance and best adapt the Navy's knowledge of ocean, coastal, and seabed areas for the purpose of increasing the effectiveness of naval and other service offensive and defensive operations and weapon systems. This objective also includes supporting, directly, development of military systems and design of ships, vehicles, and other equipment by the solution of specific, immediate, and long-range oceanographic problems.

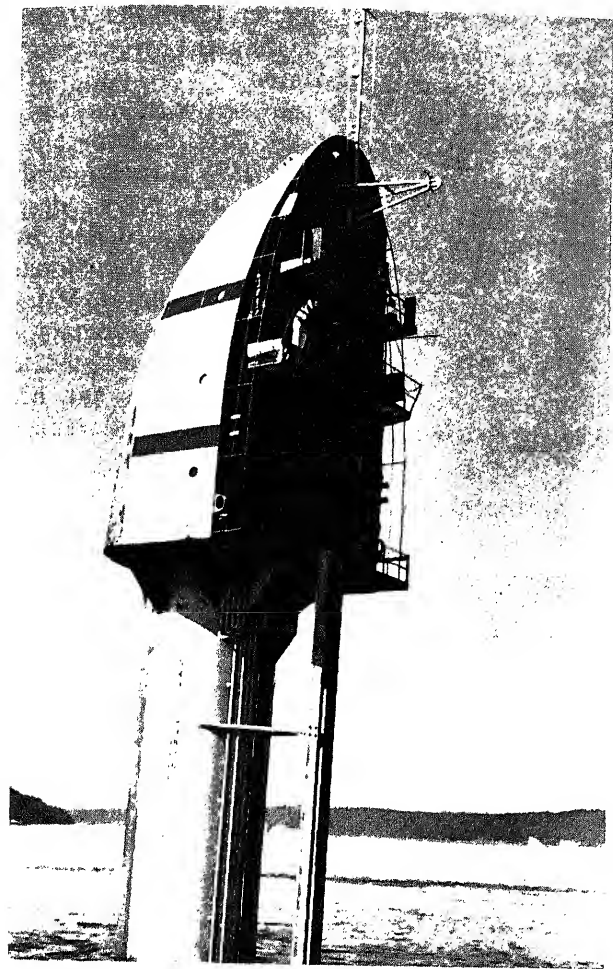
A secondary (nonmilitary) objective is to advance knowledge of all aspects of the ocean, coastal, and seabed areas to permit and encourage successful exploration of these areas for economic, scientific, social, political, and prestige gains. This objective also includes cooperation in the preparation of plans for extending or developing international law concerning the ocean, coastal, and seabed areas.

National defense takes priority over other goals, and oceanographic efforts must be primarily, fully, and immediately responsive to military requirements. However, the Navy is the foremost sea-oriented activity with the most expertise in oceanography. In this position of leadership, it is obligated to support the nonmilitary objectives of the national oceanographic program. To meet both military and nonmilitary requirements, the Navy maintains an independent, comprehensive, and responsive program in oceanographic surveys, research, applications, and developments, with adequate supporting ships, instrumentation, and facilities to carry out this program.

The largest portion of knowledge gained from oceanographic activities of the Navy is not classified and is made available to national, international, and private organizations. Consistent with its own established oceanographic effort, the Navy cooperates with any national organization devoted to the study of the total environment, and/or with any organization which attempts to provide a national focus on the environmental phenomena.

Platforms and Deep Submergence Vehicles

Oceanographic research requirements have resulted in a number of odd-looking craft. The FLIP (floating instrument platform shown in figure 28-6) was constructed for the Scripps Institute of Oceanography. It and the Navy SPAR (seagoing platform for acoustics research) are similar in appearance, size, and operation. Each is approximately 355 feet long and 15 to 16 feet in diameter. Designed to be stable floating research platforms, they are towed to



134.115

Figure 28-6.—Instrument platforms designed for maximum stability are ballasted to a vertical position while on station.

their ocean stations horizontally, then ballasted to a vertical position. The draft of each, when vertical, is about 300 feet.

The crew's quarters, electronic workshops, and other equipment are located in the 55-foot prow, raised above the water. Measuring instruments may be mounted anywhere along the submerged hull. Because FLIP must function in both horizontal and vertical attitudes, the operating machinery and essential living equipment are swing-mounted or "gimbaled" so that they stay horizontal when the platform is in

FLIP to shift from the horizontal to the vertical position.

The motions of these platforms under the influence of ocean waves approximate those of a simple pendulum. By altering the ballast condition, the effective pendulum length may be controlled such that a natural period of motion may be chosen to cancel or minimize wave-induced motions. This method of "tuning" platform response permits ultrastabilization with maximum motion limited to a few centimeters under average sea conditions.

Unlike the FLIP, which is manned by scientists, SPAR is unmanned; it is controlled externally, receiving its power by cable from a nearby ship. Instruments are installed to record data regarding underwater sound quality, water temperature, and surface waves. The information gathered by the equipment is transmitted to the SPAR's tending ship where it is entered into a high-capacity data logging system.

In late 1974, FLIP and an unmanned alpha buoy were used by military and civilian scientists in a research project north of Hawaii to acquire data on the air-sea transfer of heat, motion, and water vapor. This experiment was used as a basis for more intensive studies of how ocean temperatures cause climatic changes and how to improve weather forecasting. The FLIP and her crew measured the ocean's heat flow, profiled currents, and transfer of heat from the surface to various ocean depths.

The alpha buoy used in the north Pacific research project provided a stable platform for instruments recording routine surface meteorological measurements. It was also used in coordination with FLIP for physical oceanographic measurements. With the purchase of the bathyscaphe *Trieste* in 1958 from the Swiss inventor and physicist, Auguste Piccard, the Navy began to explore the depths of the ocean using deep submersible vehicles. The *Trieste* was moved to San Diego, Calif., where a program of training and research was started. In 1960, the *Trieste*, with Navy Lieutenant Don Walsh and Jacques Piccard (son of Auguste Piccard) aboard, descended 35,800 feet to the

called the Marianas Trench), the deepest known part of the ocean.

In 1963 when the Navy submarine *Thresher* was lost off the coast of Maine, *Trieste I* and the ocean research ship *USNS Mizar* conducted an intensified search and located the *Thresher*. During this search, *Trieste I* recovered a piece of piping which was later identified as coming from the *Thresher*. An improved version of the bathyscaphe, known as *Trieste II*, was commissioned in January 1964 and figured prominently in the 1964 investigation of the submarine *Thresher's* wreckage. *Trieste's* lights enabled her operator to take photographs of

what was observed. Later, in 1968, the *Trieste* was employed in investigating the wreckage of the Navy submarine *Scorpion*.

After the Navy's success with its early research projects using the *Trieste*, it began a deep submergence vehicle (DSV) development program. The prototype of Navy deep submergence vehicles, *Alvin*, was funded by ONR and constructed for use by the Woods Hole Oceanographic Institution (WHOI) in Maine to carry out a broad program of oceanographic research. The then Bureau of Ships assisted in preparing performance specifications for her design and construction. The two-man vehicle

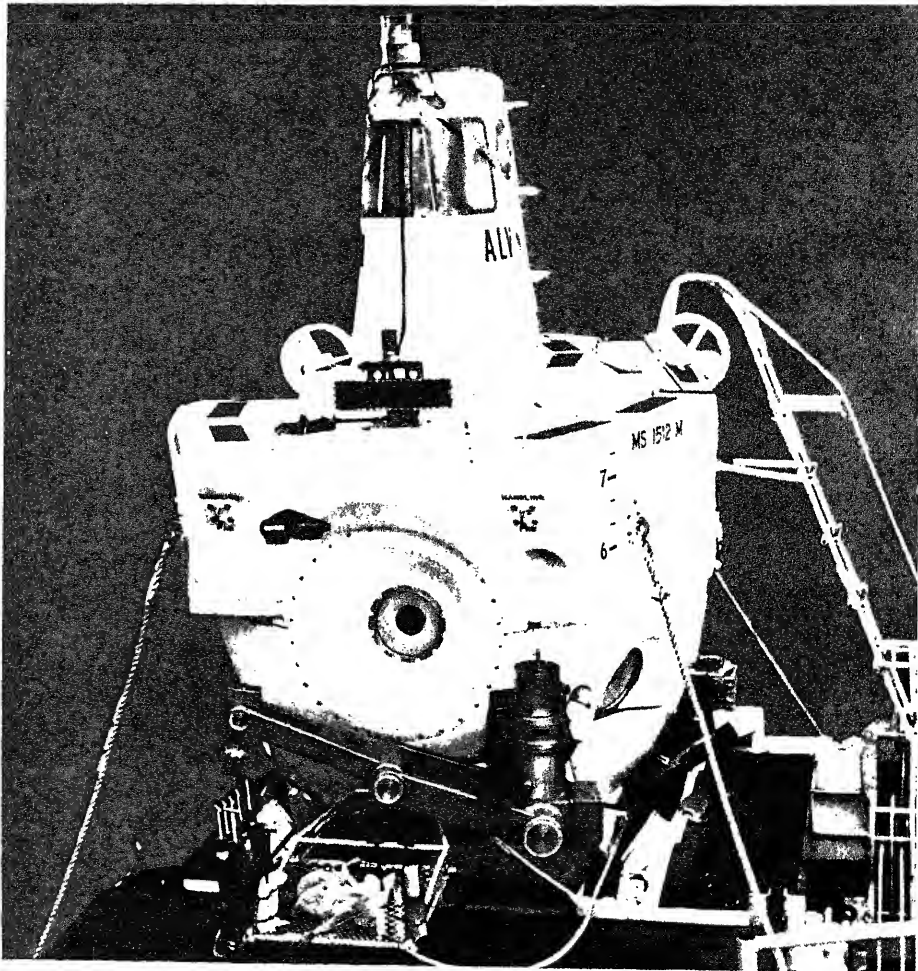


Figure 28-7.—The deep submergence vehicle (DSV) *Alvin*.

(figure 28-7) was designed to operate to a depth of 6500 feet and cruise at slow speeds for 8 to 10 hours.

Alvin gained fame early in 1966 when, during one of the largest underway search and recovery operations in history, it located a missing nuclear bomb in Spanish coastal waters. On one occasion, *Alvin* retrieved its own mechanical arm from a depth of 4400 feet. In October 1968, *Alvin* sank in 5000 feet of water south of Cape Cod when cables snapped during launch operations from its catamaran mother ship. Ten months later, in August 1969, *Alvin* was recovered by the *USNS Mizar* (T-AGOR-11) and the civilian DSV *Aluminaut*. In 1973, *Alvin's* steel pressure sphere was replaced with a

sphere made of titanium, doubling its depth capacity.

The latest additions to the *Alvin*-type deep submergence vehicle are the *Turtle* (DSV-3) and the *Sea Cliff* (DSV-4) (figure 28-8). Each is equipped with two bow-mounted, remotely controlled mechanical arms (*Alvin* only has one). Also, the *Turtle* and *Sea Cliff* carry a three-member crew, while *Alvin* carries a two-member crew. Both of these DSVs, as well as *Trieste II* (DSV-1) are presently attached to the Submarine Development Group One operating out of San Diego, Calif., in support of the Naval Underseas Center (NUC). They also conduct research and other operations for a variety of Navy activities, and other Federal

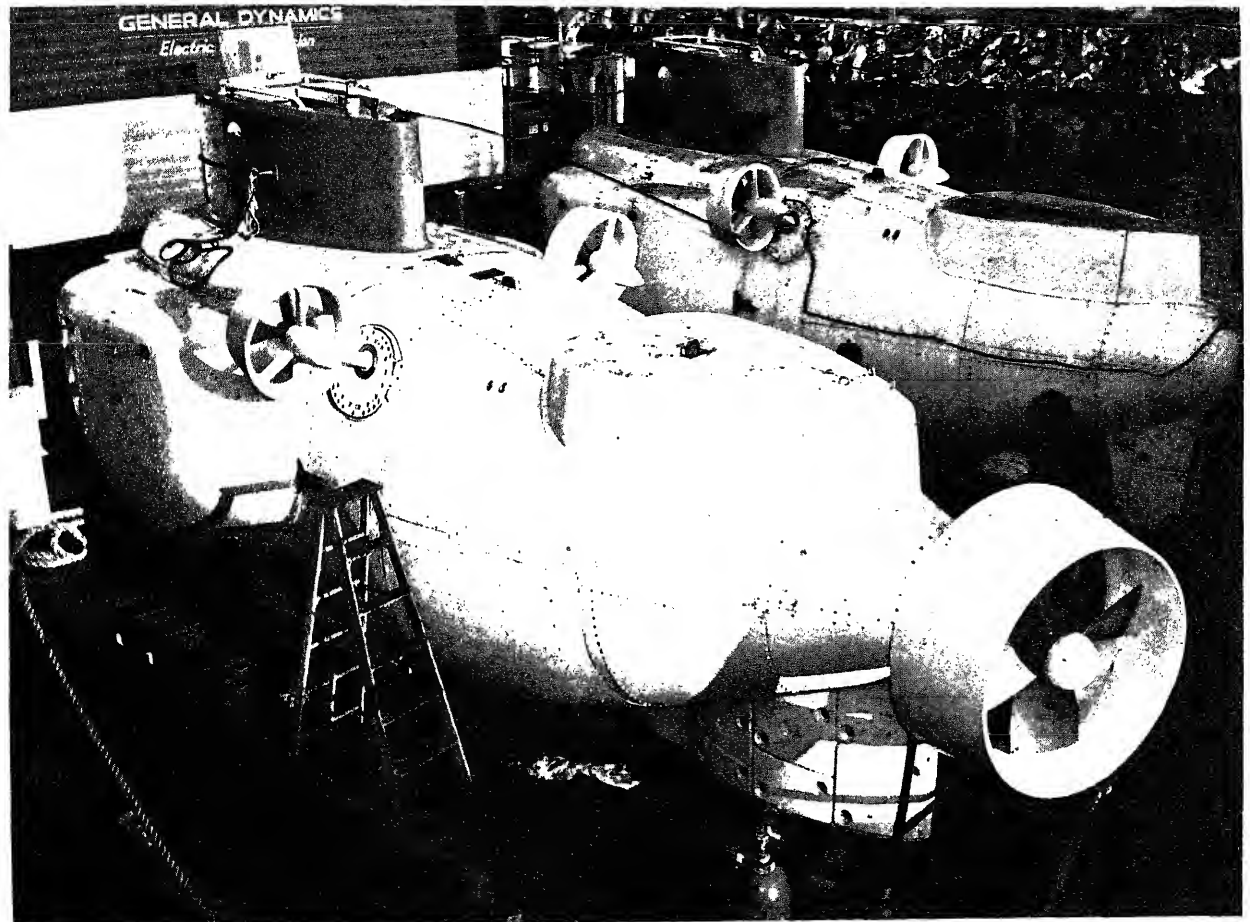


Figure 28-8. DSVs 3 and 4 (*Turtle* and *Sea Cliff*)

activities and educational institutions which conduct oceanographic research.

In 1975, the *Turtle* (DSV-3) completed a 4-month expedition off the coast of Costa Rica and Colombia. This expedition was undertaken to prove the theory that sections of the Earth's crust, or plates, are constantly moving and cause such activity as earthquakes, volcanos, and tidal waves. Scientists on the *Turtle* were able to watch the Cocos plate move underneath the Central American crust, and to take movies as well as approximately 15,000 still photos of the geographic phenomenon.

Man-In-The-Sea Program

During the 1960s, the Navy pioneered living and working in the sea with saturation diving experiments designated as *Sealab I* and *II*. In both these projects, Navymen and civilians descended to an underwater habitat in which they lived and from which they emerged to perform useful tasks in the sea before returning to their underwater home.

In the second *Sealab* experiment, the number of participants, the time spent underwater, and the depth at which the habitat was placed were all greater than *Sealab I*.

The primary purposes of the Navy's underwater living experiments were to develop and test new diving tools and techniques, and other underwater equipment designed to increase a diver's mobility and effectiveness.

In *Sealab II*, conducted off San Diego, each of the three 10-man teams remained at a depth of 205 feet for 15 days in cold water, while one remained there for 30 days. In addition to living underwater and conducting a multitude of physiological experiments, underwater tasks in simulated salvage, oceanography, and construction were performed. The three teams spent 300 man-hours working outside the habitat.

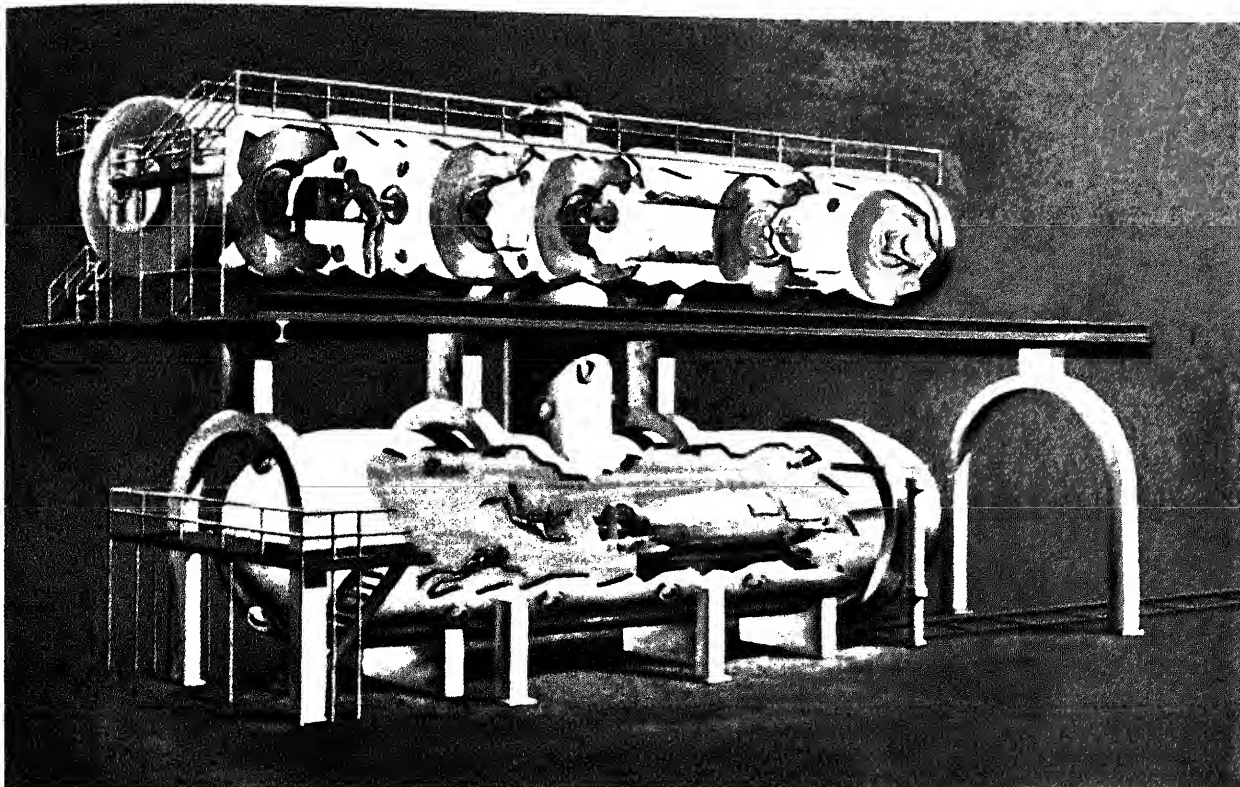
As mentioned, the technique used in *Sealab* is known as saturation diving. During both experiments, the divers within the *Sealab* habitat lived under the same pressure which the sea exerted outside the habitat. Inasmuch as they

lived constantly under this pressure, it was only necessary for them to go through the lengthy periods of compression and decompression once.

The undersea home occupied by the *Sealab* aquanauts has since been modified to include the same long-term benefits without the technicalities of maintaining an underwater habitat. Divers working in high pressures can now enter a habitat in the ship which remains over their working site. When the desired pressure has been achieved in the habitat (now called a deck decompression chamber (DDC)), the divers descend to their working site in elevator-like conveyances called personnel transfer capsules (PTCs), which are also pressurized. The DDC is maintained on the deck of the support ship. They return to their pressurized DDC in the same way and continue in this manner until their task beneath the ocean's surface is completed. At that point, the pressure within the DDC is slowly decreased until it coincides with normal air pressure and the divers are able to return to the outside world once more. Returning to atmospheric pressure requires about one day of decompression for each 100 feet of saturation depth. The equipment (PDC, DDCs, support craft, handling system, and mooring and winching system) are identified as a deep diving system (DDS) and assigned mark and modification numbers. For example, the Mk 1 DDS is presently assigned to the Harbor Clearance Unit 2 in Little Creek, Va., and the Mk 2 Mod 0 DDS is presently assigned to Submarine Development Group One operating out of San Diego, Calif.

It was the Mk 1 DDS that was used by the team of U.S. Navy and Royal Navy divers when they set the World's open sea diving record of 1148 feet in June 1975. This record-setting saturation diving series was conducted in the Gulf of Mexico off Panama City, Fla., and was supported by the Navy Experimental Diving Unit and the Naval Coastal Systems Laboratory located at Panama City.

Much of the Navy's training and research in saturation diving (man-in-the-sea program) is presently being conducted by the Navy Experimental Diving Unit in the Ocean Simulation Facility located at the Naval Coastal Systems Laboratory, Panama City, Fla. This



134.212

Figure 28-9.—Artist's rendering of man and machine being tested in hyperbaric chambers of the Ocean Simulation Facility.

facility (see figure 28-9) enables the Navy to develop, test, and evaluate underwater man-in-the-sea systems to depths of over 2000 feet, with particular emphasis on the man/equipment interface.

Search, Rescue, and Salvage

For years, the development of a deep-sea search, rescue, and salvage program has occupied a considerable portion of the Navy's underseas research effort. Because of the *Thresher* disaster, highest priority was given to a system for rescuing crewmen from distressed submarines. The research efforts led to the development of a deep submergence rescue vehicle (DSRV). Two of these vehicles, DSRV-1 and DSRV-2, have been developed for search and rescue missions.

The DSRV is a small submersible which has a streamlined outer hull made of fiberglass-reinforced plastic. There is a three-sphere inner hull containing the vehicle's sensor control and life support systems.

The inner hull protects the vehicle's three operators, the submarine survivors, and its pressure sensitive equipment from the intense pressure and low temperatures found at the 5000-foot depths to which the vehicle can descend.

The forward sphere of the inner hull houses two operators and an elaborate integrated control and display (ICAD) system. ICAD ties together data from sonars, closed-circuit television, and various controls to permit the operators to guide the DSRV rapidly and effectively in all its complex maneuvers. The two other spheres can hold up to a total of 24 survivors and additional operators.

When the DSRV is at work, it settles down over the hatch of a disabled submarine and water is pumped from a domelike apparatus which fits over the disabled submarine's hatch. Survivors can then pass through the hatch into the DSRV without being exposed to the open sea, as shown in figure 28-10.

At least one of the two DSRVs is intended to be maintained in an alert status and can be moved on a large flatbed trailer immediately to a nearby airfield. When the occasion demands, both the DSRV and its support equipment are loaded into three or four jet transports and flown to a port near the disabled submarine. Simultaneously, a nuclear-powered submarine that has been modified to carry the DSRV or one of the two specially built catamaran-hulled

submarine rescue ships is directed to the same port. At the port, the DSRV and certain support equipment are loaded on the "mother submarine" or the ASR. Figure 28-11 shows a DSRV-2 being lifted by a suspended cradle to the deck of its support ship (*USS Pigeon*, ASR-21).

At present, there are two DSRV support ships: *USS Pigeon* (ASR-21), homeported in San Diego, Calif., and *USS Ortolan* (ASR-22), homeported in Norfolk, Va. These twin-hulled (catamaran) ships were specifically designed to support the DSRV. With their sophisticated, computerized sonar tracking system, the ASRs can track the submerged DSRV and, with the cradle shown in figure 28-11, can launch or recover the 40-ton DSRV in minutes. The

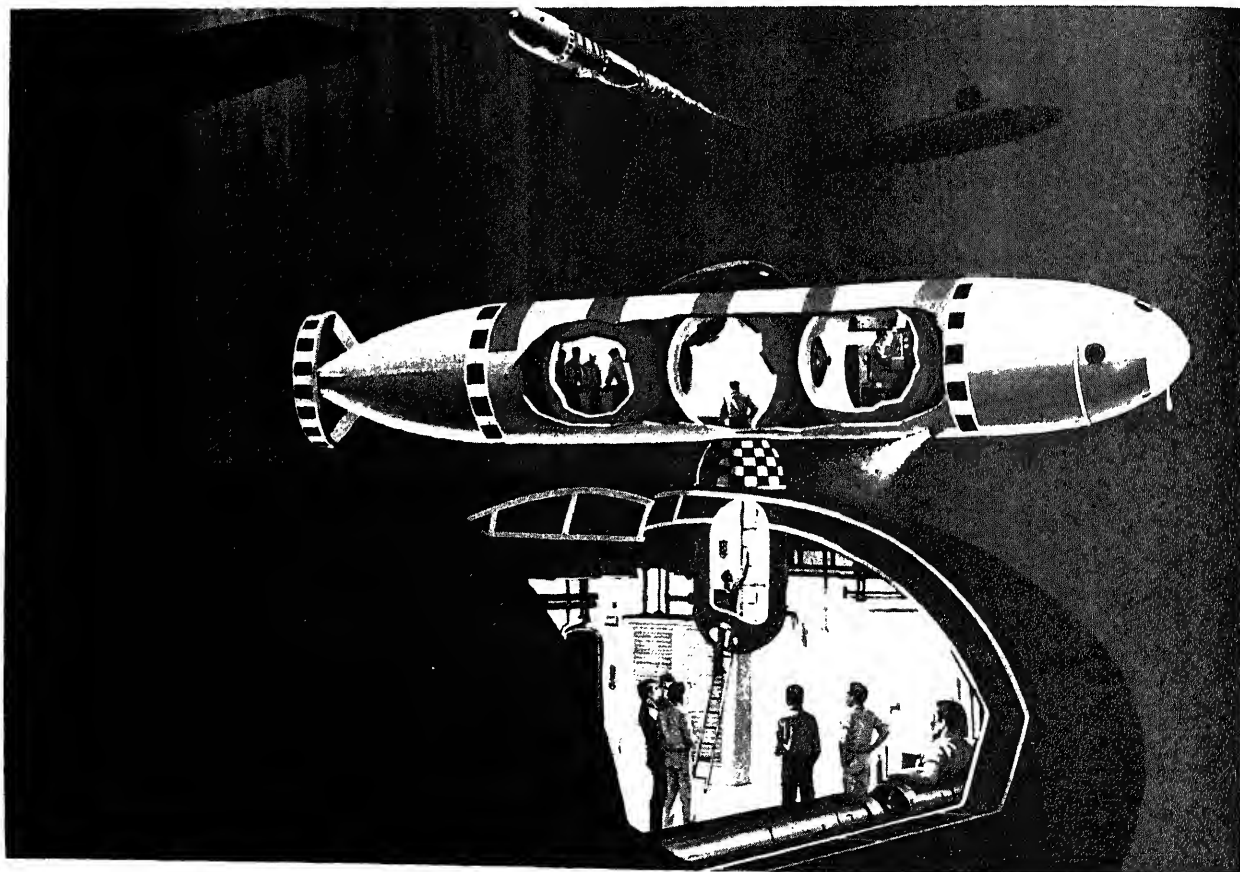
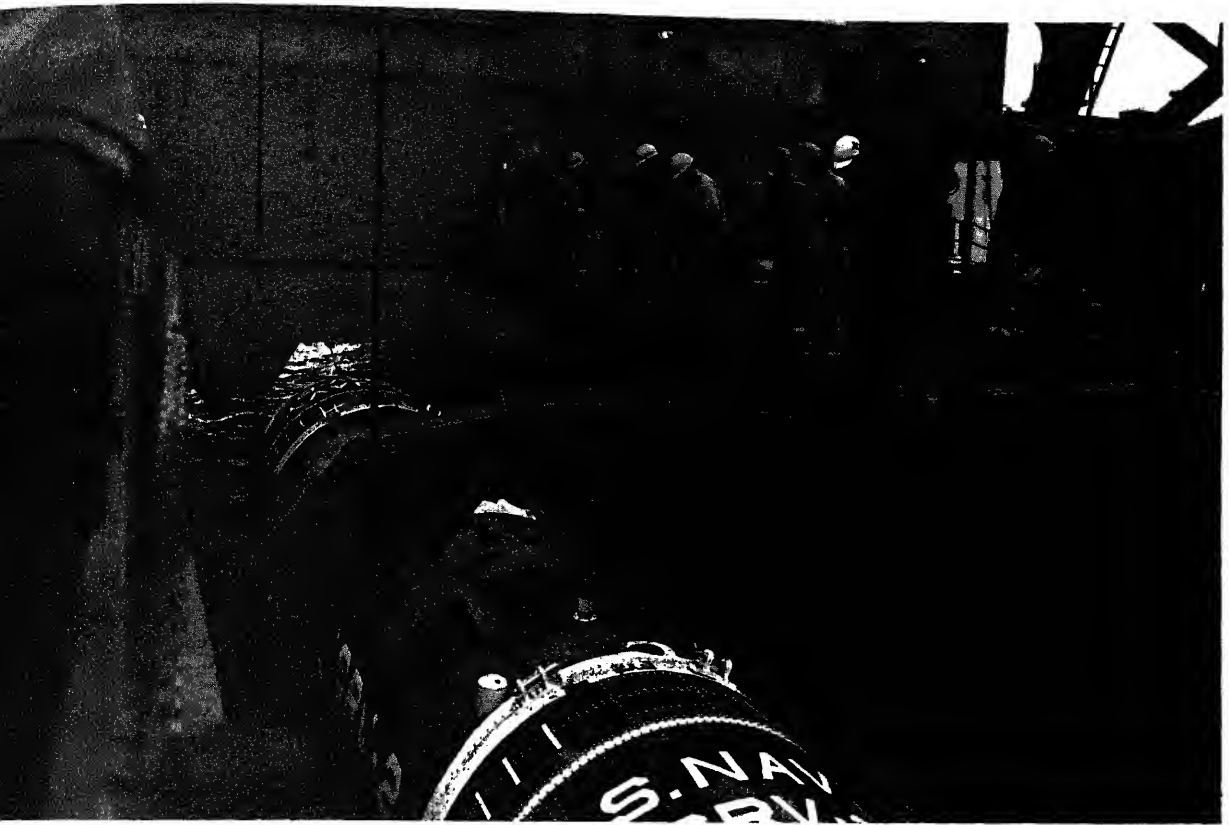


Figure 28-10.—Artist's concept of the DSRV mated with the escape hatch of a distressed submarine and personnel transferring to the rescue vehicle.

134.179



134.213

Figure 28-11.—DSRV-2 ready to be lifted aboard the Pigeon (ASR-21).

unique hull design of ASR-21 is depicted in figure 28-12.

The term “salvage” covers everything from the recovery of lost and unexploded ordnance items to refloating stranded or sunken ships. Examples of naval salvage operations include recovery of the ships sunk on 7 December 1941 at Pearl Harbor and, more recently, the clearing of the Suez Canal in 1974.

Much of the research in Navy salvage support for inshore, or coastal, areas is conducted by the Naval Coastal Systems Laboratory (NCSL) at Panama City, Fla. Their efforts include research in large object salvage systems (LOSSs), self-propelled swimmer delivery vehicles (SDVs), diver life support systems, and hand-held sonar devices.

NAVSEA has pioneered the development of deep ocean unmanned search and recovery

systems for the Navy. The cable-controlled unmanned research vehicle (CURV) supports NAVSEA’s underwater weapon development and testing program by recovering expended or lost items of underwater ordnance. CURV-II is a 2,500-foot system of which there are two; one is used by the Naval Torpedo Station at Keyport, Wash. CURV-III is a 7,000-foot system, with an extension capability to 10,000 feet. This system is assigned to the Naval Undersea Center (NUC) at San Diego, Calif. In September 1973, CURV-III played a major role in the recovery of *PISCES III*, a small manned submersible, off the coast of Ireland, saving the lives of the two occupants.

The Navy’s newest unmanned research and recovery system is referred to as the remote unmanned work system (RUWS). RUWS (figure 28-13) is a cable-tethered system, designed for a

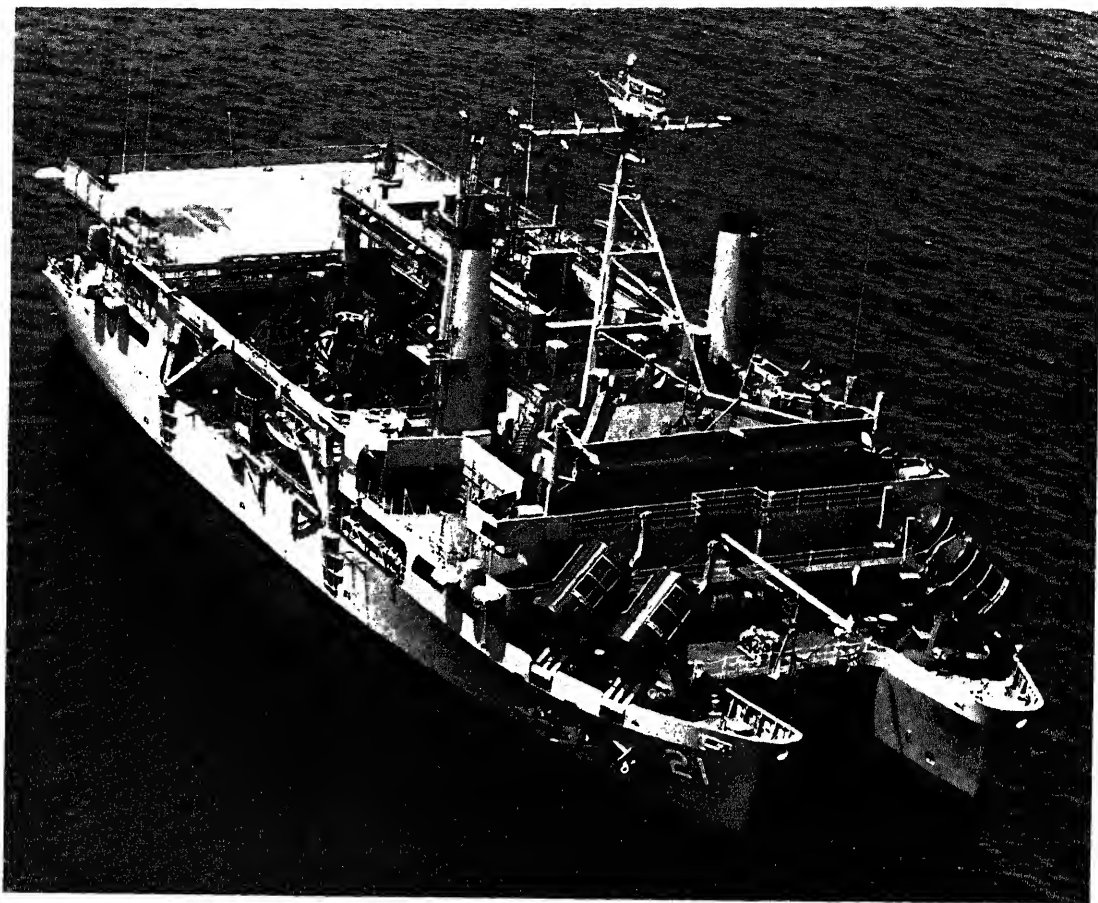


Figure 28-12.—The USS Pigeon (ASR-21).

134.200

variety of undersea search, recovery, and general work operations at ocean depths to 20,000 feet. It is air-transportable for rapid installation aboard selected naval ships such as the ASR, ATS, and catamaran-ASR class ships.

Underwater Acoustics

The importance of underwater acoustic (sound) technology becomes evident when considering that the naval operating area covers approximately three-fourths of the Earth's surface. This area of research provides the expertise and equipment necessary for the detection, identification, and tracking of underwater objects; and the control and

guidance of underwater weapons, underwater communications, and a myriad of other complex technologies.

Basic and applied research in the area of underwater acoustics covers a broad spectrum that includes acoustic radiation and transduction, propagation and scattering, and signal processing. As described in the first part of this chapter, the Naval Research Laboratory (NRL) in Washington, D.C., serves as a focal point for standardization of underwater sound measurements and assumes a major responsibility for research and development in undersea acoustic surveillance. However, other naval research activities, such as the Naval Underwater Systems Center (NUSC) at Newport, R.I., the Naval Undersea Center

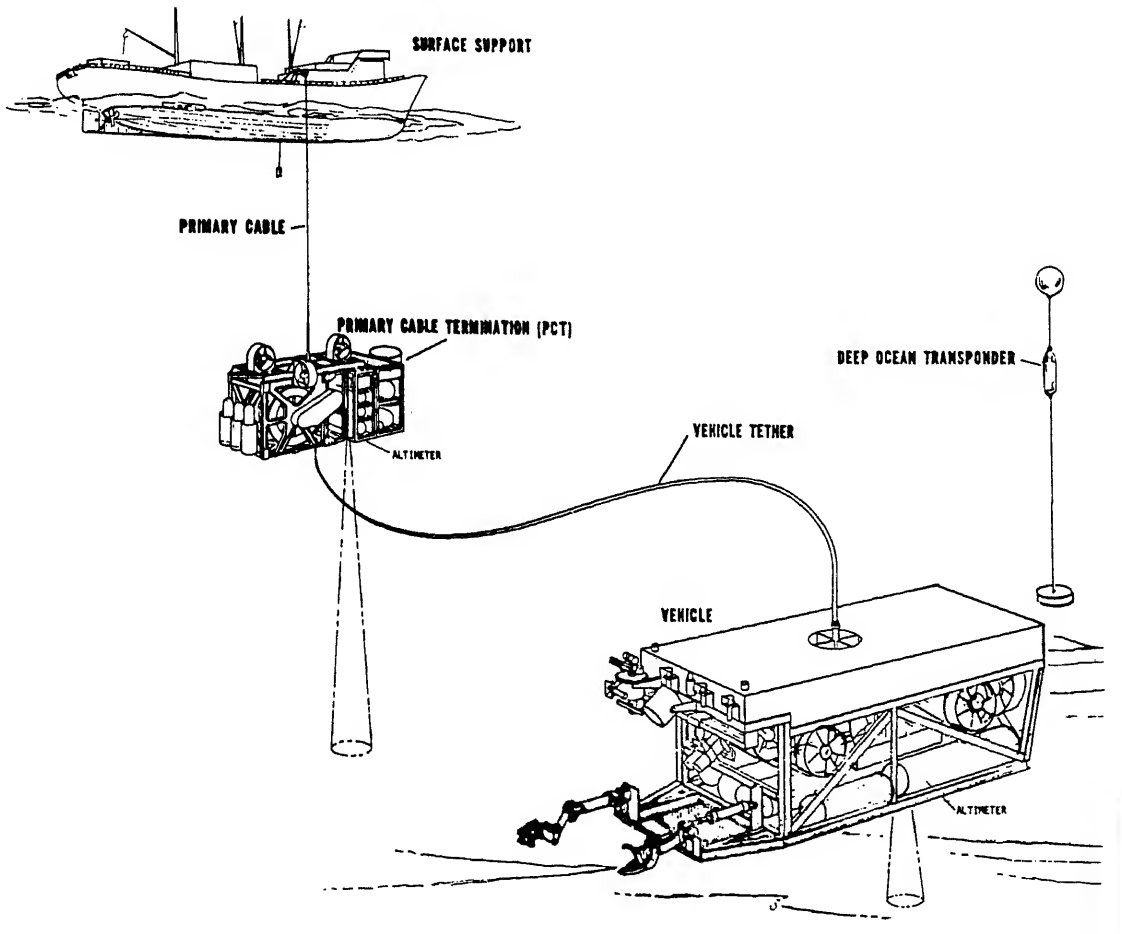


Figure 28-13.—RUWS.

134.214

(NUC) at San Diego, Calif., and the Naval Coastal Systems Laboratory (NCSL) at Panama City, Fla., contribute research effort in this area. For example, NCSL is tasked with acoustic countermeasure research.

Resources

As human technological capabilities increase, attention shifts to methods of exploiting the sea's wealth. Geologists estimate that 40% of the free world's natural resources lie beneath the continental shelves. Other experts have estimated that the world's oceans contain about 15 billion tons each of copper and manganese, 7 trillion tons of boron, 20 billion tons of

uranium, 500 million tons of silver and 10 million tons of gold.

To use a graphic illustration—if all the minerals of the sea were precipitated, the amount obtained would produce a volume equal to 20% of the Earth's rock volume above sea level.

Discounting offshore oil drilling, which has been in progress for many years, comparatively little has been done to exploit mineral wealth which is more or less readily available. For example, manganese nodules weighing up to 1700 pounds are known to exist on the ocean floor in concentrations of up to 10 pounds per square foot. Less available are silica, aluminum, manganese, nickel, cobalt, copper, and vanadium

which lie in the red clay of the abyssal plains which are under very deep water. Minerals, however, are not the only wealth of the sea. It is also a source of food.

As the world's population increases, man will increasingly be forced to use the sea's edible bounty. And why not? A tremendous amount of food can become available. With sufficient nutrients and sunlight the sea can provide about 4000 tons of vegetable matter per year, per square mile. One square mile of good midwest wheatland, on the other hand, usually yields from 600 to 700 tons of wheat during the same period.

The sea now provides about 30 million tons of food each year. By far, most of this food is taken either in nets, traps, or by lines. Comparatively little is deliberately cultivated.

Mankind is also looking toward the sea for sources of power and even freshwater. As a power source, the motion of the oceans' waves could possibly be harnessed to provide a never-ending source of energy. This would lessen dependence on coal, oil, and nuclear fission.

As for using the oceans as a source of freshwater, methods of desalinizing ocean water have already been used in various parts of the world. The Navy, for example, has plants which supply freshwater to its installations at Guantánamo Bay, Cuba, and McMurdo Sound in the Antarctic.

Today's technology has already done much to extend man's capability for working in the sea and using its resources. Tomorrow undoubtedly will see refinements of today's methods, bringing the conquest of man's last earthly frontier one step closer. It is a safe bet that the Navy will continue in the forefront of this effort.

OTHER AREAS OF NAVAL RESEARCH

The remainder of this chapter briefly describes some of the research areas and activities responsible for research and development for the Navy.

Shipbuilding

The research, development, test, and evaluation of naval ship architecture, marine engineering, ship concepts, and related fields of science and engineering are tasked to the David W. Taylor Naval Ship Research and Development Center (DWT NSRDC). This center was established in 1967 with the merger of the former David Taylor Model Basin at Carderock, Md., and the former U.S. Navy Marine Engineering Laboratory at Annapolis, Md. Reorganization occurred in 1971 with two departments in Annapolis and six departments in Carderock. Headquarters is at Carderock.

As the principal research and development, test and evaluation center for naval vehicles, functions at DWT NSRDC include new vehicle concepts, towing systems, ocean platforms, air cushion vehicles, ship-aircraft compatibility, and ship trials; surface and subsurface vehicle technology; hydrodynamics and vehicle aerodynamics; computer-aided ship design and construction; computer software technology; acoustic performance and predictions; ship submarine and craft noise measurement and silencing; ship control, propulsion, habitability; oceanography; marine corrosion; alloys; silencing techniques; marine piping; and shipboard pollution abatement.

Recent developments include a ship encapsulation method allowing a ship to be preserved without moving topside equipment; superconducting electrical machinery, much smaller and lighter than conventional electrical machinery of the same power; fuel cells for power systems for deep-diving submersibles and pressure balanced operations at deep depths; and nonpolluting polymers to retard corrosion and keep barnacles and slime from collecting on a ship's hull. The laboratory is responsible for finding ways to control all pollution generated by ships, whether oil, sewage, trash, garbage, or industrial wastes. An oil-water separator system has been developed; several sewage systems are under study.

The world's largest deep ocean environment simulation facility is located at Annapolis. This complex of five tanks allows engineers to study,

in a controlled environment, the effects of deep ocean pressures on small submersibles, and submersible machinery and equipment. Closed-circuit television is used for monitoring.

The David Taylor Model Basin at Carderock, Md., was named for the late Rear Admiral David Watson Taylor, Constructor of the Navy. Admiral Taylor was the driving force behind the establishment in 1898 of the Experimental Model Basin at the Washington Navy Yard. There, Navy ship models first were tested in tanks and airplane models in wind tunnels. By 1936, the Navy Yard facilities had been outgrown. To replace them, Congress authorized the purchase of 186 acres in Carderock. The land provided solid bedrock on which to build the towing tanks and other projected research facilities. In 1939, the David Taylor Model Basin began operations; the wind tunnel operation followed 5 years later.

Surface Weapons and Weapon Systems

The focal point for development of naval surface warfare weapon systems, research in ordnance technology, and support of naval strategic systems is the Naval Surface Weapons Center (NSWC). This center was established in 1974 by combining the management, technical programs, and resources of the Naval Ordnance Laboratory, White Oak, Md., and the Naval Weapons Laboratory, Dahlgren, Va.

Some of the Center's current programs are in the areas of surface- and air-launched missiles, fuzing, nuclear weapon effects, high-energy laser engineering, antiship missile defense, aerodynamic and hydrodynamic research, geoballistics, astronautics, geodesy, and the gunnery improvement program. Other capabilities include development of gun systems and projectiles (such as the 8-inch semiactive laser-guided projectile), torpedoes, mines, and advanced strategic weapon concepts.

Examples of research and development activities in the weapon explosive area include the Naval Explosives Development Engineering Department (NEDED) at the Naval Weapons Station, Yorktown, Va., and the Naval Ordnance Station at Indian Head, Md.

Underwater Weapons and Underwater Weapon Systems

The Navy's main research, development, test, and evaluation activity for underwater combat systems is the Naval Underwater Systems Center (NUSC) at Newport, R.I. NUSC is committed to a diversity of complex technological research programs concerning command and control systems, underwater weapons and targets, weapon launchers and tubes, underwater tracking ranges, sonar, surveillance, ocean engineering, and fleet readiness. In addition to its Newport facilities, NUSC has a major research and development laboratory complex at New London, Conn.

Although NUSC is tasked to perform research and development of torpedo-type weapons, some research and development, and considerable testing and evaluation of torpedoes is also conducted at the Naval Torpedo Station (NTS) at Keyport, Wash. In addition, NTS, Keyport, serves as the sole proofing activity for production torpedoes. Proofing includes a series of tests that a sample of production torpedoes must pass before the torpedo is accepted and delivered to the fleet.

Naval Aircraft Systems

The principal field activity for the design and cradle-to-grave management of the aircraft system is the Naval Air Development Center (NADC) at Warminster, Pa. The Center conducts research, development, tests, and evaluation of, and life cycle support for, major naval aircraft systems. NADC was established in 1944. Its capabilities were expanded substantially in 1973 when the Naval Navigation Laboratory (NNL), formerly the Naval Strategic Systems Navigation Facility, was incorporated under NADC. Approximately 60% of the research and development at NNL deals with navigation for surface ships and submarines. The other 40% is concentrated on airborne navigational systems. Some of the current and ongoing research and development projects presently being conducted by NNL include ring laser gyro technology, the global positioning system, and the joint tactical information distribution system.

APPENDIX I

PERSONNEL RECORDS

An officer's record maintained in the Bureau of Naval Personnel is intended to reflect the official history of the officer's career in the Navy. It is the property of the Government and not of the officer concerned. This official record maintained for Regular Navy and Naval Reserve officers may contain any document which bears or reflects on the character, performance, professional qualifications and fitness of the officer. This record shall not be used as a depository for documents of a personal nature that have no bearing on personnel functions. The record is reviewed when any change in status is contemplated, such as, assignment to duty, special details, examination for promotion, trial by general court-martial, or disciplinary action by the Chief of Naval Personnel. The record is of particular importance in selection for promotion.

All officer personnel records held in BUPERS have been converted from a flat paper to a microfiche format. The officer record now consists of up to six categories of microfiche which contain types of documents as indicated in figures A1-1 and A1-2 and listed below:

- a. Fiche No. 1—Fitness and Awards
 - (1) Assignment Officer Code.
 - (2) Latest Photograph.
 - (3) Fitness Reports and Attachments.
 - (4) Medals/Awards/Citations; Commendatory Data (received prior to 30 Sep 73).
- b. Fiche No. 2—Professional History
 - (1) Educational Data.
 - (2) Qualifications/Classifications/Designation Data.
 - (3) Appointments/Promotions/Commissions.
 - (4) Reserve Status.

- (5) Service Determinations/Separation/Retirement.
- (6) Miscellaneous Professional History.
- c. Fiche No. 3—Personal Data
 - (1) Security Investigations, Clearances, Personal History Statement.
 - (2) Record of Emergency Data.
 - (3) Record Changes.
 - (4) Personal Background Data (Citizenship/Casualty/Death/Biography).
 - (5) Reports of Physical Examination.
 - (6) Miscellaneous Personal Data.
- d. Fiche No. 4—Orders
- e. Fiche No. 5—Privileged Information
 - (1) Adverse Information. (Pursuant to Navy Regulations, adverse matter shall not be placed in an officer's record without the knowledge of the officer. In all cases, it shall be referred to the officer reported on for such official statement as may be desired. If the officer reported on chooses to make no statement, that intention shall be so indicated in writing. The Chief of Naval Personnel interprets what constitutes adverse matter.)
 - (2) Statements of the officer in reply to adverse matter.
 - (3) Extracts from the findings and recommendations of courts and boards concerning the officer. These include statements of disciplinary action and court-martial orders or promulgating letters of general courts-martial where there has been a finding of guilty. When trial results in an acquittal of all charges and specifications, or in cases in which the final review of a conviction results in action tantamount to an acquittal of all charges and specifications, court-martial orders or the promulgating letters of courts-martial shall not be included in the officer's official record. No

The diagram shows a document image grid with the following labels and fields:

- INDIVIDUAL'S SSN**: Points to the field containing "121 33 4444".
- PHOTO**: Points to the field containing "SMITH JOHN Q".
- FICHE TYPE NUMBER**: Points to the field containing "1".
- INDIVIDUAL'S NAME**: Points to the field containing "SMITH JOHN Q".
- ONE DOCUMENT IMAGE**: Points to the grid area.
- 3 FITNESS REPORT FORMS CONTINUATIONS AND ATTACHED MATERIAL**: Points to the field containing "3".
- COMMENDATORY DATA MEDALS, AWARDS/CITATIONS ETC**: Points to the field containing "71".

The grid is organized into rows and columns. The first row contains the SSN, name, and type number. The second row contains the fitness report forms. The third row contains the commendatory data. The remaining rows are empty.

OFFICER FICHE 1 FITNESS AND AWARDS

	121 33 4444	SMITH JOHN Q	2
A	1	EDUCATIONAL DATA	
B	15	QUALIFICATIONS DATA	
C	29	APPOINTMENTS PROMOTIONS	
D			
E	57	RESERVE STATUS	
F	71	SERVICE DETERMINATION SEPARATION AND RETIREMENT	
G	85	MISCELLANEOUS	

OFFICER FICHE 2 PROFESSIONAL HISTORY

121 33 4444	SMITH JOHN Q	3
1	SECURITY INVESTIGATIONS, CLEARANCES, PERSONAL HISTORY STATEMENT	
29		
43	EMERGENCY DATA	
57	RECORD CHANGES	
65	PERSONAL BACKGROUND DATA	
85	MISCELLANEOUS	

OFFICER FICHE 3 PERSONAL DATA

134.217

Figure A1-1.—Officer Fiche Formats.

entry whatsoever regarding the acquittal shall appear in the officer's official record, neither the fact of having been tried nor any mention of the offense. Complete records of proceedings of courts-martial inquiries, investigations, etc., are filed in the Office of the Judge Advocate General.

(4) Other information of a highly personal nature (e.g. psychiatric examination).

(5) This microfiche is prepared on individual officers only if there is correspondence which is derogatory in nature, or correspondence reflecting various Board decisions, including Medical Boards, which becomes a matter of official record.

f. Fiche No. 6—Enlisted Record

(1) Prepared only for officers who have served as enlisted members for two or more years and whose officer microform record was established during the initial conversion process from flat paper to microfiche format. Enlisted documents for officers who completed less than two years of enlisted service are distributed in the appropriate subject matter field on Fiche 1 through 5.

The official officer record which is presented to Selection Boards is comprised of Fiche Numbers 1, 2 and, if it exists, 5 for Active Duty officers and Fiche Numbers 1, 2, 4 and, if it

NAVAL ORIENTATION

121 33 4444										SMITH JOHN Q										4	
A B C D E F G	1	ORDERS																			

OFFICER FICHE 4 ORDERS

121 33 4444										SMITH JOHN Q										5	
A B C D E F G	1	PRIVILEGED INFORMATION																			

OFFICER FICHE 5 PRIVILEGE INFORMATION

121 33 4444										SMITH JOHN Q										6	
A B C D E F G	1	ENLISTED RECORD																			

OFFICER FICHE 6 ENLISTED RECORD

134.218

Figure A1-2.—Officer Fiche Formats.

exists, 5 for USNR (inactive) and TAR officers. Fiche Numbers 3 and 6 are normally maintained for administrative purposes only; however, Fiche Number 3 may be provided to Boards, upon their request, for determination of medical status.

Commendatory correspondence may no longer be filed in the officer official record. Any commendatory correspondence or recognition for performance which is beyond that normally expected should be considered by the reporting senior when overall performance is evaluated in the preparation of the officer's fitness report. If considered appropriate, an entry should be made in the remarks section of the fitness report

reflecting the commendatory material received and any other pertinent related facts.

Access to the record of an officer is normally limited to the officer concerned, an agent or representative of the officer specifically authorized in writing, the Chief of Naval Personnel and authorized assistants in the conduct of their official duties, duly convened Boards of the Department of the Navy, courts-martial, and to the clerk of a court of competent jurisdiction in response to a valid order from that court.

Any matter that is rightfully placed in the official record of an officer may not be removed except by special authorization of the Secretary

of the Navy. The record is permanent. Once submitted to the Chief of Naval Personnel, a fitness report becomes the property of the Navy Department and is not subject to change. A report may be amended or supplemented by correspondence forwarded via official channels. In such cases, the forwarding correspondence will be microfilmed and made a part of the fitness report being amended or supplemented.

Anonymous communications are not made a part of an officer's official record.

OFFICER SERVICE RECORD

An Officer Service Record (figure A1-3) is maintained for every officer in addition to the officer's record in BUPERS. This is a brown manila file folder similar in general format to the enlisted service record.

For the active duty officer, the service record is maintained by the activity to which he is attached.

<u>COLLINS</u> LAST	<u>JAMES</u> FIRST	<u>(N)</u> MIDDLE	<u>323-83-4432</u> SERVICE NO
NAME		SSN	USNR

U. S. NAVY

Officer Service Record

CAUTION

The inviolability of naval personnel records and the information contained therein has long been recognized by the Department of the Navy in view of the confidential nature of such records. Accordingly, the release of information must be sharply restricted and rigidly controlled, except that information which each officer has specifically approved for release for publicity purposes which is contained on the Officer Biography Sheet (Form NAVPERS 979). Otherwise, information may not be divulged from the Officer Service Record, nor may access to the record be granted, except to persons properly and directly concerned.

NAVPERS 1070/66

Figure A1-3.—Cover for Officer Service Record.

For officers not on active duty and retired officers, the responsibility for maintenance of service records depends on whether the officers are participating in inactive duty training. For those not participating (i.e., not having orders for any type of inactive duty training), the records are maintained by the Commanding Officer, Naval Reserve Personnel Center, New Orleans, La.

The Officer Service Record is designed to provide a ready file of documents which may be used for billet assignment and other administrative purposes and to establish facts, when necessary, regarding his naval service.

The right side of the record is reserved for documents affecting utilization and assignment of the officer concerned. The left side is used for information primarily related to the officer's present tour of active duty. Accordingly, some items filed on the left side are removed from the folder when the officer is transferred and given to him to retain in his own possession or to destroy as he sees fit. Miscellaneous documents not coming in either of the above categories, but establishing significant facts relating to the officer's service, are also filed on the left side.

A list of the rather large number of documents filed on each side and the order of filing is given in *BUPERS Manual*.

APPENDIX II

OFFICER FITNESS REPORTS

Fitness reports form one of the most important documents of an officer's record. They provide a record of the duty performed and the manner of its performance, the professional qualifications of the officer, commendatory or censorious received by him, any disciplinary action, the general state of his health and endurance as it affects his value to the naval service, any special qualifications possessed by the officer, and his personal characteristics.

Fitness reports are the primary instrument by which the best qualified officers are promoted and by which those with the particular qualifications required are chosen to fill responsible positions in the military establishment. In addition, they are used as evidence before courts-martial and in connection with disciplinary action of a lesser degree. Each report should be a frank, accurate, and comprehensive portrayal of the characteristics and manner of performance of duty of the officer reported on.

Because of the importance of these reports, all officers should familiarize themselves with both the form and the instructions concerning its use. NAVPERS 1611/1 (figures A2-1 and A2-2) is the optical character recognition (OCR) form on which fitness reports are submitted. Specific instructions for completing the form are promulgated by BUPERINST 1611.12 series.

It was mentioned in appendix I that access to an officer's record (where fitness reports are retained) in the Bureau of Naval Personnel may be granted to the officer concerned or to his designated representative. Every officer, when in the Washington, D.C. area, should take advantage of the opportunity to visit the

Records Review Room in BUPERS and review his past fitness reports. The visit will serve at least two purposes: (1) the officer can assure himself that there are no missing reports, or should there be, he can take remedial action (request their submission from the appropriate reporting seniors) in advance of the date the next selection board in his case meets; and (2) by comparing reports, he can determine whether, in the opinion of his successive reporting seniors, he is declining in some aspects of his professional ability or qualifications. Again, he may have the opportunity to take remedial action (improve himself).

It is the responsibility of each superior exercising command functions to complete fitness reports on all officers who have reported to him for duty in accordance with orders issued by the Secretary of the Navy, the Chief of Naval Personnel, or others authorized by them to issue such orders.

Reports of fitness on Regular officers and Reserve officers on active duty are submitted at least annually on a schedule published by the Chief of Naval Personnel. Reserve officers, training and administering reserves (TARs) on extended duty, who compete among themselves for promotion, have a different submission schedule.

Reports of fitness on Reserve officers who perform active duty for training are submitted on NAVPERS 1611/1 by the commanding officer of the ship or station where the active duty was performed, and are forwarded direct to the Chief of Naval Personnel. The occasion for such reports is "Detachment of Officer."

Most scheduled submission dates are approximately 3 months before the usual

BUPERS USE ONLY		16111-1		BUPERS USE ONLY	
REPORT ON THE FITNESS OF OFFICERS					
1 NAME (LAST, FIRST, MIDDLE)		2 GRADE	3 DESIG	4 SSN	
5 ACQUA/TEMAC	6 UIC	7 SHIP/STATION		8 DATE REPORTED	
9 PERIODIC		10 DETACHMENT OF REPORTING SENIOR	11 DETACHMENT OF OFFICER	12 PERIOD OF REPORT FROM: TO	
14 REGULAR		15 CONCURRENT	16 SPECIAL	17 OPS CDR	
18 CLOSE		19 FREQUENT		20 INFREQUENT	
21 EMPLOYMENT OF COMMAND (CONTINUED ON REVERSE SIDE OF RECORD COPY)					
23 REPORTING SENIOR (LAST NAME, FLMI)		24 TITLE	25 GRADE	26 DESIG	27 SSN
28 DUTIES ASSIGNED (CONTINUED ON REVERSE SIDE OF RECORD COPY)					
29 SPECIFIC ASPECTS OF PERFORMANCE (TYPE IN OCR CODE LETTER FROM WORK SHEET)					
30 GOAL SETTING & ACHIEVEMENT		31 SUBORDINATE MANAGEMENT & DEVELOPMENT	32 WORKING RELATIONS	33 EQUIP & MATERIAL MANAGE	34 NAVY ORGAN SUPPORT
35 RESPONSE IN STRESSFUL SITUATIONS		36 EQUAL OPPORTUNITY	37 SPEAKING ABILITY	38 WRITING ABILITY	
39 WARFARE SPECIALTY SKILLS (FROM OCE WORK SHEET)		40 AIRMANSHIP	41 WATCH STANDING	42 UTILIZATION	
43 SUBSPECIALTY CODE		44 REQUIRED BY BILLET	45 YES	46 NO	47 FREQUENT
48 INFREQUENT		49 NONE		50 PERFORMANCE	
MISSION CONTRIBUTION		NOT OBS		TYPICALLY EFFECTIVE OFFICER	
51 EVALUATION		1% 5% 10% 30% 50% 50% 30% MARG UNSAT		BOTTOM	
52 SUMMARY					
53 TREND OF PERFORMANCE		54 CON-SISTENT			
55 IMPROVING		56 DECLINING			
57 DESIRABILITY (TYPE IN OCR CODE FROM WORK SHEET)		58 COM-MAND			
59 OPERA-TIONAL		60 STAFF			
61 RECOMMENDATION FOR PROMOTION		62 EARLY			
63 REG-ULAR		64 NO*			
65 RANKING FOR EARLY PROMOTION		66 RANKING			
67 PERSONAL TRAITS (TYPE IN OCR CODE FROM WORK SHEET)		68 ANALYTIC ABILITY			
69 JUDGE-MENT		70 PERSONAL BEHAVIOR			
71 FORCE-FULNESS		72 MILITARY BEARING			
73 WEAKNESSES DISCUSSED?		74 YES			
75 NO		76 NO*			
77 STATEMENT		78 NOT DESIRED			
79 ATTACHED					
80 SIGNATURE OF OFFICER EVALUATED (HAW BUPERS INST 1611-12 SERIES) I AC KNOWLEDGE THAT I HAVE SEEN THIS REPORT AND HAVE BEEN APPRISED OF MY PERFORMANCE					
81 SIGNATURE OF REPORTING SENIOR					
82 DATE FORWARDED		83			
84 SIGNATURE OF REGULAR REPORTING SENIOR ON CONCURRENT AND CONCURRENT/SPECIAL REPORT					
85 DATE FORWARDED		86			

NAVPERS 1611/1 (REV. 9-72) S/N 0106-LF-078 3113

☆ U. S. GOVERNMENT PRINTING OFFICE: 1974 - 357-667

DETACH WORK SHEET BEFORE COMPLETING FORM

Comments are required. Enter comments in Section 88 on RECORD and OFFICER copies.
DO NOT ATTACH CONTINUATION PAGES TO OCR COPY.

WORK SHEET

Figure A2-1.—Report on the Fitness of Officers (NAVPERS 1611/1), (front).

21. EMPLOYMENT OF COMMAND (Continued)

26. DUTIES ASSIGNED (Continued)

38. COMMENTS: Particularly comment upon the officer's overall leadership ability, personal traits not listed on the reverse side, and estimated or actual performance in combat. Include comments pertaining to unique skills and distinctions that may be important to career development and future assignment. A mark in boxes with an asterisk (*) indicates adversely and supporting comments are required.

134.220

Figure A2-2.—Report on the Fitness of Officers (NAVPERS 1611/1), (back).

convening dates of applicable selection boards, which gives each board the benefit of the latest performance evaluation. The more frequent submission of reports for junior officers is necessary to accelerate the development of record information, to facilitate closer supervision of those officers, and to provide a basis for consideration for postgraduate schooling and other training.

In addition to the foregoing, regular detachment reports are submitted for all officers upon the permanent detachment of themselves or their regular reporting seniors.

To avoid unnecessary submission of fitness reports for brief periods of time and otherwise to facilitate the administration of fitness reports, the prescribed reporting periods may be modified as indicated below. The intent is for fitness reports to cover all time in a duty status.

A reporting senior may extend a periodic report for a maximum of 60 days on either end of the period involved when either the officer reported on or the reporting senior reports for duty before or is detached after the period to be extended. For example, a commander who reports for duty on 12 May 1977 and whose regular reporting senior is detached on 21 June 1978 could properly receive but one report of fitness for the entire period commencing 12 May 1977. A reporting senior who is being detached,

however, must submit a fitness report on every officer who is aboard as of the day of his detachment, regardless of how brief a period may be involved.

When an officer reports on board for temporary duty for purposes of briefings, training, indoctrination, or awaiting further transportation for a period not to exceed 30 days, the period involved and nature of assigned duties often preclude a meaningful evaluation. In such instances, the temporary duty reporting senior need not submit a fitness report. However, the temporary duty reporting senior must ensure that both the officer concerned and the ultimate command are advised that no report has or will be submitted for such period. Additionally, the ultimate command must be provided all training information to record in the next regular report. The ultimate command must cover the temporary duty, as well as other transient time, in the next regular report.

PREPARATION OF FITNESS REPORTS

The importance of keeping the records of officers continuously complete in all respects requires prompt submission of the report. The responsibility is twofold—that of the officer reported on to submit his report at the proper

time to his reporting senior, and that of the reporting senior to complete this report and forward it to the Bureau of Naval Personnel as expeditiously as practicable.

Each officer's fitness report file should contain a complete and continuous record of all time in active duty status. To this end, the period of the report should commence with the day after the terminal date of the last report or the date the officer was detached from his last duty station. Time between stations spent in transit, on leave, in the hospital, or on inactive duty should be indicated in the report. The reporting senior's marks and remarks are limited to the period during which the officer was under his command.

Commanding officers frequently require their executive officers and department heads to report to them on the performance of officers serving under their supervision. These reports are for the use of the commanding officer in making his reports on the fitness of officers under his command and are not forwarded to the Chief of Naval Personnel.

After a naval action or campaign, and after service on shore with an expeditionary force or force of occupation, an entry is made on each officer's next report of fitness of his participation therein, stating the kinds of services performed and giving the date and names of any engagements in which he took part.

Officers in the grades of warrant officer (W-1), chief warrant officer (CWO-2), and ensign through lieutenant must, except in unusual circumstances, sign the record copy regardless of the report content. The report must be signed in ink by both the officer being evaluated and the reporting senior.

Officers in the grades of lieutenant commander through captain may be given counseling upon request although reports shall not as a matter of routine be shown to them. When the report has been discussed but not shown to the officer, the words "REPORT DISCUSSED" are typed in section 82 of both the OCR form and record copies of the report, so that discussion information will be available to appropriate officer record users.

Reporting seniors will show fitness reports to officers in the grades of warrant officer (W-1), chief warrant officer (CWO-2), and ensign through lieutenant. This action will be accompanied by personal counseling, and to this end a frank and meaningful discussion and explanation of the report must be conducted so that the officer may fully understand his performance.

SPECIAL FITNESS REPORTS

Special reports of fitness on an officer, on the prescribed form, are made whenever the officer reported on—

1. Distinguishes himself in battle.
2. Performs an outstanding act of valor or devotion to duty.
3. Displays extraordinary courage, ability, or resource in time of peril or great responsibility.
4. Is guilty of serious misconduct or marked inefficiency.

ADVERSE REPORTS

Adverse matter is not placed in an officer's record without his knowledge. A fitness report containing adverse matter is referred officially in writing to the officer reported on for such official statement as he may choose to make in reply. If that officer desires to make no statement, he must so state officially in writing. The statement (or nonstatement) is endorsed by the reporting senior and forwarded to the Chief of Naval Personnel together with the fitness report.

When a report referred to an officer for statement is not returned to the reporting senior within a reasonable time, the reporting senior forwards a signed duplicate report to the Chief of Naval Personnel with an explanation of the circumstances. The officer reported on is informed when this is done.

SUBMISSION OF REPORTS

When it is completed, the regular reporting superior forwards the report of fitness directly to the Chief of Naval Personnel.

Any reports concerning the actions or performance of the officer reported on during a transit period between stations are addressed to the superior to whom the officer is reporting for duty, and normally are attached by him to the next regular report of fitness. When the nature of such a report is such that early action by the Chief of Naval Personnel is indicated, the report is forwarded to him immediately.

The reports of fitness of officers are considered and treated as private official. The

reports are forwarded in double envelopes. If it is necessary to make reference to classified information in a fitness report, the instructions promulgated in *Department of the Navy Information Security Program Regulation* apply. The outer envelope is addressed to the Bureau of Naval Personnel (Fitness Report Branch); the inner envelope is marked "Report of Fitness, For Official Use Only."

Any officer may, upon request, obtain a copy of the five most recent reports in his record. A written request accompanied by a personal check or money order for \$2.00, payable to BUPERS, may be submitted directly to BUPERS.

APPENDIX III

CLASSIFICATION AND DISTRIBUTION OF OFFICERS

The Navy, to carry out its assigned missions, needs personnel with a variety of training, skills, and experience. To help ensure efficient use of its personnel, the Navy employs classification systems compatible with electronic data processing. These systems and their supporting code structures provide means for stating the Navy's requirements for specific billets, and for rapidly identifying needed skills, training, and occupational experience. Code identification of significant factors facilitates personnel planning, development of training requirements, skills utilization, and distribution of officer personnel. Code identification also is of paramount importance in the evaluation of mobilization readiness, and in the orderly call of inactive officers to active duty in times of national emergency.

Except under unusual circumstances, detailing of active naval officers is a result of individual study of service records and exhibited potential as they are related to service needs. The Chief of Naval Personnel does not detail officers "by machine."

CLASSIFICATION

The Navy's officer classification system provides a method of recording, on a continuing basis, each officer's professional and personal qualifications, any combination of which may be required to perform the duties of a particular billet. The professional qualifications (such as aptitude, educational achievement, occupational experience, and physical condition) and the personal qualifications (such as language proficiency, geographic familiarity, and licenses)

are collected, evaluated, and coded to reflect the Navy's manpower resources.

The Navy officer billet classification (NOBC) system provides for collecting and evaluating data related to peacetime and wartime officer manpower requirements and for identifying and classifying officer billets at ships and on stations.

Qualifications information for officers on active duty is recorded on magnetic disk packs, using the code structure outlined and defined in the *Manual of Navy Officer Billet Classifications*, NAVPERS 15839 series. These data identify, among other things, manpower requirements in terms of specific billets and officers' skills; i.e., occupational experience in these billets, as well as any special qualifications, such as required education. The annually submitted (by individual officers) Officer Preference and Personal Information Card provides distribution officers in BUPERS with additional information to be considered when making decisions, including specific duty and geographic area preferences.

Generally, occupational qualifications codes represent experience rather than capability. They do not describe quality of performance, nor do they indicate future assignments. Occupational codes are valuable tools for providing a quick index of officers' skills for planning, mobilizing, and detailing.

The Officer Data Card (ODC), NAVPERS 1301/6, is a representative sample of data elements from an officer's electronic record. The ODC is forwarded to each officer 4 to 6 months after his arrival at a new duty station, thus periodically providing him with the opportunity to validate his record or update it as needed.

The use of magnetic disk packs as the recording medium permits the inclusion (for officers on active duty) of seven naval and civilian occupational codes, information pertaining to formal education in two schools, ability in two languages, and completion of five Navy-sponsored schools and courses. The amount of recordable information for officers not on active duty is somewhat less due to the limited space available on the annually submitted qualification questionnaires.

DISTRIBUTION

The Chief of Naval Personnel has the responsibility for detailing officers. Within the Bureau and under the cognizance of the Assistant Chief for Officer Development and Distribution, officer allowances, or complements, of each ship and station and the personnel available are considered simultaneously in making assignment decisions.

(In the case of Staff Corps officers, assignment recommendations are made by their sponsoring systems commands.) The assignment of each officer is the result of individual study of the best information available concerning the requirements (allowance/complements) and the officer (his entire service record). Classification information is often initially used in those cases where an officer with a specific background is needed. In this respect, classification helps to narrow the field of search.

In peacetime, the most frequent course followed in detailing officers is to review career needs of the individual officer as he is made available for rotation upon completion of normal tours of duty, and to assign the officer to a billet commensurate with his acquired skills, training, and so on, that will utilize his capabilities and simultaneously enhance his command qualifications. It is under the duress of emergency and mobilization that qualification records become essential as a shortcut to detailing large numbers of officers.

APPENDIX IV

MORSE CODE, SEMAPHORE, AND ALPHABET FLAGS

Letter	Phonetic Alphabet	Pronunciation Guide	International Morse Code
A.....	ALFA.....	<u>AL</u> FA.....	..--
B.....	BRAVO.....	BRAH VOH.....	---..
C.....	CHARLIE.....	<u>CHAR</u> LEE.....	-.-.-.
D.....	DELTA.....	<u>DELL</u> TAH.....	---..
E.....	ECHO.....	<u>ECK</u> OH.....	..
F.....	FOXTROT.....	<u>FOKS</u> TROT.....	..-.-
G.....	GOLF.....	GOLF.....	---..
H.....	HOTEL.....	HOH TELL.....	....
I.....	INDIA.....	<u>IN</u> DEE AH.....	..
J.....	JULIETT.....	<u>JEW</u> LEE ETT.....	--- --
K.....	KILO.....	<u>KEY</u> LOH.....	---..
L.....	LIMA.....	<u>LEE</u> MAH.....	....
M.....	MIKE.....	MIKE.....	--
N.....	NOVEMBER.....	NO VEM BER.....	---.
O.....	OSCAR.....	<u>OSS</u> CAH.....	--- --
P.....	PAPA.....	PAH PAH.....	---.-
Q.....	QUEBEC.....	KAY BECK.....	--- --
R.....	ROMEO.....	ROW ME OH.....	---.
S.....	SIERRA.....	SEE AIR RAH.....	...-
T.....	TANGO.....	TANG GO.....	--
U.....	UNIFORM.....	YOU NEE FORM.....	..-.-
V.....	VICTOR.....	VIK TAH.....	...-
W.....	WHISKEY.....	WISS KEY.....	---.-
X.....	XRAY.....	<u>ECKS</u> RAY.....	--- --
Y.....	YANKEE.....	<u>YANG</u> KEY.....	---.-
Z.....	ZULU.....	ZOO LOO.....	---..

Number	Pronunciation Guide	International Morse Code
1.....	WUN.....	..-.-.-
2.....	TOO.....	..-.-
3.....	THUH-REE.....	..-.-
4.....	FO-WER.....	..-.-
5.....	FI-YIV.....	..-.-
6.....	SIX.....	..-.-
7.....	SEVEN.....	..-.-
8.....	ATE.....	..-.-
9.....	NINER.....	..-.-
0.....	ZERO.....	..-.-

Figure A4-1.—Phonetic alphabet and Morse code.

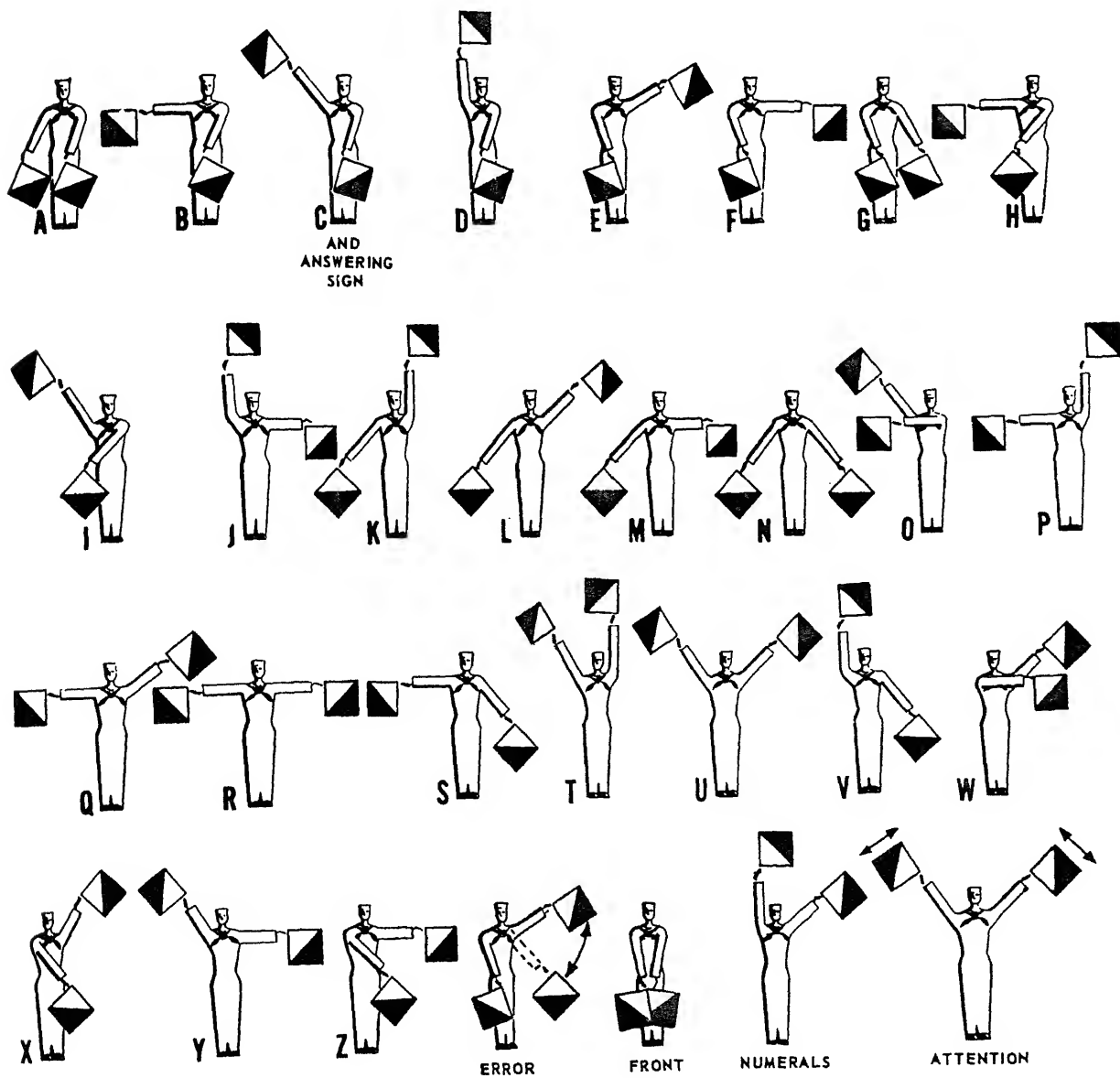


Figure A4-2.—Semaphore alphabet.





































FLAG and NAME	Spoken	Written	FLAG and NAME	Spoken	Written	FLAG and NAME	Spoken	Written
 A	ALFA	A	 M	MIKE	M	 Y	YANKEE	Y
 B	BRAVO	B	 N	NOVEMBER	N	 Z	ZULU	Z
 C	CHARLIE	C	 O	OSCAR	O	 1	ONE	1
 D	DELTA	D	 P	PAPA	P	 2	TWO	2
 E	ECHO	E	 Q	QUEBEC	Q	 3	THREE	3
 F	FOXTROT	F	 R	ROMEO	R	 4	FOUR	4
 G	GOLF	G	 S	SIERRA	S	 5	FIVE	5
 H	HOTEL	H	 T	TANGO	T	 6	SIX	6
 I	INDIA	I	 U	UNIFORM	U	 7	SEVEN	7
 J	JULIETT	J	 V	VICTOR	V	 8	EIGHT	8
 K	KILO	K	 W	WHISKEY	W	 9	NINE	9
 L	LIMA	L	 X	XRAY	X	 0	ZERO	0

Figure A4-3.—Alphabet and numeral flags.































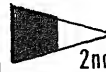

PENNANT and NAME	Spoken	Written	PENNANT or FLAG	Spoken	Written	PENNANT or FLAG	Spoken	Written
 1	PENNANT ONE	p1	 CODE or ANSWER	CODE or ANSWER	CODE or ANS	 NEGATIVE	NEGAT	NEGAT
 2	PENNANT TWO	p2	 SCREEN	SCREEN	SCREEN	 PREPARATIVE	PREP	PREP
 3	PENNANT THREE	p3	 CORPEN	CORPEN	CORPEN	 PORT	PORT	PORT
 4	PENNANT FOUR	p4	 DESIG- NATION	DESIG	DESIG	 SPEED	SPEED	SPEED
 5	PENNANT FIVE	p5	 DIVISION	DIV	DIV	 SQUADRON	SQUAD	SQUAD
 6	PENNANT SIX	p6	 EMERGENCY	EMERGENCY	EMERG	 STARBOARD	STARBOARD	STBD
 7	PENNANT SEVEN	p7	 FLOTILLA	FLOT	FLOT	 STATION	STATION	STATION
 8	PENNANT EIGHT	p8	 FORMATION	FORMATION	FORM	 SUBDIVISION	SUBDIV	SUBDIV
 9	PENNANT NINE	p9	 INTER- ROGATIVE	INTER- ROGATIVE	INT	 TURN	TURN	TURN
 0	PENNANT ZERO	p0	SUBSTITUTES					
TACK LINE	TACK	—						
 1st. SUBSTITUTE	FIRST SUB	1st.	 3rd. SUBSTITUTE	THIRD SUB	3rd.			
 2nd. SUBSTITUTE	SECOND SUB	2nd.	 4th. SUBSTITUTE	FOURTH SUB	4th.			

Figure A4-4.—Numeral pennants, special flags and pennants, and substitutes.

APPENDIX V

HONORS AND CEREMONIES

This appendix contains excerpts from chapter 10, *United States Navy Regulations*.

1001. Authority for Dispensing With Honors.

The honors and ceremonies prescribed in these regulations may be dispensed with when directed by the Secretary of the Navy, or when requested by an individual to whom such honors and ceremonies are due.

1002. Honors Restricted to Recognized Governments.

No salute shall be fired in honor of any nation or of any official of any nation not formally recognized by the Government of the United States; and, except as authorized by the Secretary of the Navy, no other honors or ceremonies prescribed in these regulations shall be rendered or exchanged with such nations or officials.

1003. International Honors Modified by Agreement.

Should the required number of frequency of international salutes, official visits, or other honors and ceremonies be deemed excessive, the senior officer present in the United States naval service may make, subject to the requirements of international courtesy, such modification as circumstances warrant and as may be agreed upon with the responsible officials or the senior officer present of the nation involved.

HONORS TO NATIONAL ANTHEMS AND NATIONAL ENSIGNS

1004. Manner of Playing National Anthems.

1. The National Anthem of the United States, "The Star Spangled Banner," when

played by a naval band shall be played in its entirety as written and as prescribed in the official U.S. Navy Band arrangement which is designated as the official Department of Defense arrangement.

2. The playing of the National Anthem of the United States, or of any other country, as a part of a medley is prohibited.

3. When a foreign national anthem is prescribed in connection with honors, and it is considered appropriate to perform the National Anthem of the United States therewith, the National Anthem of the United States will be performed last.

4. On other occasions when a foreign national anthem (or anthems) is performed, the National Anthem of the United States will be performed last, except when performed in conjunction with Morning Colors.

1005. Procedure During Playing of National Anthems.

1. Whenever the National Anthem is played, all naval service personnel not in formation shall stand at attention and face the national ensign; but in the event that the national ensign is not being displayed, they shall face the source of the music. When covered they shall come to the salute at the first note of the anthem, and shall remain at the salute until the last note of the anthem. Persons in formation are brought to order arms or called to attention as appropriate. The formation commander shall face in the direction of the music or ensign and shall render the salute for his unit. Persons in formation participating in a ceremony shall, on command, follow the procedure prescribed for the ceremony. Persons in vehicles or in boats shall follow the procedure prescribed for such

persons during colors; persons in civilian clothes shall comply with the rules and customs established for civilians.

2. The same marks of respect prescribed during the playing of the National Anthem of the United States shall be shown during the playing of a foreign national anthem.

1006. Morning and Evening Colors

1. The ceremonial hoisting and lowering of the national ensign at 0800 and sunset at a naval command ashore or aboard a ship of the Navy not underway shall be known as Morning Colors and Evening Colors, respectively, and shall be carried out as prescribed in this article.

2. The guard of the day and the band shall be paraded in the vicinity of the point of hoist of the ensign.

3. "Attention" shall be sounded, followed by the playing the National Anthem by the band.

4. At Morning Colors, the ensign shall be started up at the beginning of the music and hoisted smartly to the peak or truck. At Evening Colors, the ensign shall be started from the peak or truck at the beginning of the music and the lowering so regulated as to be completed at the last note.

5. At the completion of the music, "Carry On" shall be sounded.

6. In the absence of a band, "To the Colors" shall be played by the bugle at Morning Colors, and "Retreat" at Evening Colors, and the salute shall be rendered as prescribed for the National Anthem.

7. In the absence of music, "Attention" and "Carry On" shall be the signals for rendering and terminating the salute. "Carry On" shall be sounded as soon as the ensign is completely lowered.

8. During colors, a boat underway within sight or hearing of the ceremony shall lie to, or shall proceed at the slowest safe speed. The boat officer, or in his absence the coxswain, shall stand and salute except when dangerous to do so. Other persons in the boat shall remain seated or standing and shall not salute.

9. During colors, vehicles within sight or hearing of the ceremony shall be stopped. Persons riding in such vehicles shall remain seated at attention.

10. After Morning Colors, if foreign warships are present, the national anthem of each nation so represented shall be played in the order in which a gun salute would be fired to, or exchanged with, the senior official or officer present of each such nation; provided that, when in a foreign port, the national anthem of the port shall be played immediately after Morning Colors, followed by the national anthems of other foreign nations represented.

1007. Salutes to the National Ensign.

1. Each person in the naval service, upon coming on board a ship of the Navy, shall salute the national ensign if it is flying. He shall stop on reaching the upper platform of the accommodation ladder, or the shipboard end of the brow, face the national ensign, and render the salute, after which he shall salute the officer of the deck. On leaving the ship, he shall render the salutes in inverse order. The officer of the deck shall return both salutes in each case.

2. When passed by or passing the national ensign being carried, uncased, in a military formation, all persons in the naval service shall salute. Persons in vehicles or boats shall follow the procedure prescribed for such persons during colors.

3. The salutes prescribed in this article shall also be rendered to foreign national ensigns and aboard foreign men-of-war.

1008. "Hail to the Chief."

1. The traditional musical selection "Hail to the Chief" is designated as a musical tribute to the President of the United States, and as such will not be performed by naval bands as a tribute to other dignitaries. The same honor as accorded during renditions of the National Anthem or "To the Colors" will be given to "Hail to the Chief" by naval personnel.

2. When performed by naval bands, renditions of "Hail to the Chief" shall be as

prescribed in the official U.S. Marine Corps Band arrangement which is designated as the official Department of Defense arrangement.

HAND SALUTES AND OTHER MARKS OF RESPECT

1009. Exchange of Hand Salutes.

1. The hand salute is the long-established form of greeting and recognition exchanged between persons in the armed services. All persons in the naval service shall be alert to render or return the salute as prescribed in these regulations.

2. The salute by persons in the naval service shall be rendered and returned with the right hand, when practicable; except that, with arms in hand, the salute appropriate thereto shall be rendered or returned.

3. Juniors shall salute first. All salutes received when in uniform and covered shall be returned; at other times salutes received shall be appropriately acknowledged. Persons uncovered shall not salute, except when failure to do so would cause embarrassment or misunderstanding.

4. Civilians may be saluted by persons in uniform when appropriate, but the uniform hat or cap shall not be raised as a form of salutation.

5. A person in the naval service not in uniform shall, in rendering salutes or exchanging greetings, comply with the rules and customs established for a civilian; except that when saluting another person in the armed services, the hand salute shall be used.

1010. Occasions for Rendering Hand Salutes.

1. Salutes shall be rendered by persons in the naval service to officers of the armed forces of the United States, the National Oceanic and Atmospheric Administration, the Public Health Service and foreign armed services.

2. All persons in the naval service shall salute all officers senior to themselves on each occasion of meeting or passing near or when addressing or being addressed by such officers; except that:

a. On board ship salutes shall be dispensed with after the first daily meeting,

except for those rendered to the commanding officer and officers senior to him, to visiting officers, to officers making inspections, and to officers when addressing or being addressed by them.

b. When such procedure does not conflict with the spirit of these regulations, at crowded gatherings or in congested areas, salutes shall be rendered only when addressing or being addressed by an officer who is senior to them.

c. Persons at work or engaged in games shall salute only when addressed by an officer senior to them and then only if circumstances warrant.

d. Persons in formation shall salute only on command.

e. When boats pass each other with embarked officers or officials in view, hand salutes shall be rendered by the senior officer and coxswain in each boat. Officers seated in boats shall not rise when saluting; coxswains shall rise unless dangerous or impracticable to do so.

f. Persons operating moving motor vehicles should not render or return salutes. Passengers will render and return salutes.

g. Persons guarding prisoners will not salute.

1011. Other Marks of Respect.

1. Juniors shall show deference to seniors at all times by recognizing their presence and by employing a courteous and respectful bearing and mode of speech toward them.

2. Juniors shall stand at attention, unless seated at mess, or unless circumstances make such action impracticable or inappropriate:

a. When addressed by an officer senior to them.

b. When an officer of flag or general rank, the commanding officer, or an officer senior to him in the chain of command, or an officer making an official inspection enters the room, compartment, or deck space where they may be.

3. Juniors shall walk or ride on the left of seniors whom they are accompanying.

4. Officers shall enter boats and automobiles in inverse order of rank and shall

leave them in order of rank, unless there is special reason to the contrary. The seniors shall be accorded the more desirable seats.

5. Subject to the requirements of the rules for preventing collisions, junior boats shall avoid crowding or embarrassing senior boats.

GUN SALUTES

1012. Saluting Ships and Stations.

Saluting ships and stations of the naval service are those designated as such by the Secretary of the Navy or his duly authorized representative. The gun salutes prescribed in these regulations shall be fired by such ships and stations. Other ships and stations shall not fire gun salutes, unless directed to do so by the senior officer present on exceptional occasions when courtesy requires.

1013. Gun Salutes to the Flag of the President or the Secretary of State.

1. A 21-gun salute shall be fired to the flag of the President.

a. By each ship falling in with a ship displaying such flag, arriving at a place where such flag is displayed ashore, or present when such flag is broken.

b. By a naval station when a ship displaying such flag arrives at the naval station, or when such flag is broken by a ship present.

c. By a flag or general officer assuming command or, while in command, breaking the flag of an increased grade, in the presence of a ship or naval station displaying the flag of the President.

2. Under the circumstances prescribed by this article, a 19-gun salute shall be fired to the flag of the Secretary of State when he is acting as special foreign representative of the President.

1014. Gun Salutes to the Flag of the Secretary of Defense, Deputy Secretary of Defense, the Secretary of the Navy, Director of Defense Research and Engineering, an

Assistant Secretary of Defense, the General Counsel, Under Secretary or an Assistant Secretary of the Navy. (Figure A5-1 shows gun salutes rendered to civil officials of the United States.)

1. A 19-gun salute shall be fired to the flag of the Secretary of Defense, Deputy Secretary of Defense, Director of Defense Research and Engineering, or the Secretary of the Navy, and a 17-gun salute shall be fired to the flag of an Assistant Secretary of Defense; the General Counsel, the Under Secretary of the Navy or an Assistant Secretary of the Navy:

a. By a ship falling in with a ship displaying such flag, arriving at a place where such flag is displayed ashore, or present when such flag is broken. In case of two or more ships in company, only the senior shall salute.

b. By a naval station when a ship displaying such flag arrives at the naval station, or when such flag is broken by a ship present.

c. By a flag or general officer assuming command, or breaking the flag of an increased grade in the presence of a ship or naval station displaying the flag of such official; provided that such officer is the senior officer present or the senior officer present on shore.

2. When the flags of two or more such officials are displayed under the circumstances prescribed in this article, only the flag of the senior shall be saluted.

1015. Gun Salute to a Foreign Nation.

1. When a ship enters a port of a foreign nation, the government of which is formally recognized by the Government of the United States, she shall fire a salute of 21 guns to that nation unless:

a. There is present no saluting battery or warships of that nation capable of returning the salute.

b. The ship is returning from a temporary absence from port, when, by

NAVAL ORIENTATION

Official	Gun Salute		Official	Gun Salute	
	Arrival	Departure		Arrival	Departure
President	21	21	Governor General or Governor of a commonwealth or possession of the United States or area under United States administration . . . . .	.....	17
Ex-President or President-elect	21	21	Other Under Secretaries of Cabinet, the Solicitor General, the Deputy Attorney General, and the Deputy Postmaster General . . . . .	.....	17
Secretary of State when acting as special foreign representative of the President	19	19	Members of Congress . . . . .	.....	17
Vice President . . . . .	.....	19	Envoy Extraordinary and Minister Plenipotentiary . . . . .	.....	15
Speaker of the House of Representatives . . . . .	.....	19	Minister Resident . . . . .	.....	13
Governor of a state of the United States . . . . .	.....	19	Charge d'Affaires . . . . .	.....	11
Chief Justice of the United States . . . . .	.....	19	Career Minister, or Counselor of Embassy or Legation . . . . .	.....	.....
Ambassador, High Commissioner, or special diplomatic representative whose credentials give him authority equal to or greater than that of an Ambassador . . . . .	.....	19	Consul General; or Consul or Vice Consul when in charge of a Consulate General . . . . .	.....	11
Associate Justices of Supreme Court . . . . .	.....	19	First Secretary of Embassy or Legation . . . . .	.....	.....
US representative to the UN . . . . .	.....	19	Consul; or Vice Consul when in charge of a Consulate . . . . .	.....	7
Secretary of Defense	19	19	Mayor of an incorporated city . . . . .	.....	.....
Deputy Secretary of Defense	19	19	Second or Third Secretary of Embassy or Legation . . . . .	.....	.....
Cabinet officer other than Secretary of Defense . . . . .	.....	19	Vice Consul when only representative of United States, and not in charge of a Consulate General or Consulate . . . . .	.....	5
Secretaries of the Army, Navy, and Air Force	19	19	Consular Agent when only representative of the United States . . . . .	.....	.....
Director of Defense Research and Engineering	19	19			
President pro tempore of the Senate . . . . .	.....	19			
Assistant Secretaries of Defense	17	17			
General Counsel of the DOD	17	17			
Under Secretaries of the Army, Navy, and Air Force	17	17			
Assistant Secretaries of the Army, Navy, and Air Force	17	17			

agreement with local authorities, the salute may be dispensed with.

2. When a ship is passing through the territorial waters of a foreign nation with no intention of anchoring therein, the salute to the nation need not be fired unless unusual circumstances make it desirable to do so.

3. In case of two or more ships arriving in port or passing through territorial waters of a foreign nation in company, only the senior shall fire the salute prescribed in this article.

4. The salute to the nation, if fired, shall precede any salutes fired in honor of individuals.

1016. Returning Salute to the Nation Fired by Foreign Warship.

A salute to the nation fired by a foreign warship entering a port of the United States shall be returned by the senior ship present, provided no saluting battery of an armed service of the United States, designated to return such salutes, is present in the area.

1017. Gun Salutes to the Flag of a Foreign President, Sovereign, or Member of a Reigning Royal Family.

1. A 21-gun salute shall be fired by a ship or station to the flag or standard of the president, sovereign, or member of a reigning royal family under the circumstances prescribed in these regulations for firing a salute to the flag of the President of the United States.

2. In some foreign countries it is the national custom to fire special 21-gun salutes on certain occasions in honor of the president, sovereign, or a member of the reigning royal family. In such cases, ships shall conform to the national custom when requested by the proper local authorities.

1018. Gun Salutes When Several Heads of State are Present.

1. Each ship upon entering a port where the personal flags or standards of several presidents, sovereigns, or members of reigning royal families are displayed, shall fire a 21-gun

salute to each of the several flags or standards displayed, in the following order:

a. The president, sovereign, or member of the reigning royal family of the nation to which the port belongs.

b. The President of the United States.

c. The presidents or sovereigns of other nations, in alphabetical order of the names of the nations in the English language.

d. Members of reigning royal families of other nations, in the same order as in subparagraph c, above.

2. In the circumstances set forth in this article, only the flag or standard of the senior dignitary of each nation shall be saluted.

1019. Authority to Fire Gun Salutes to Officers in the United States Naval Service.

Gun salutes prescribed in these regulations (see figure A5-2) for officers and officials entitled to 17 or more guns shall be fired on the occasion of each official visit of the individual concerned. Gun salutes prescribed in these regulations for officers and officials entitled to 15 guns or less shall not be fired unless so ordered by the senior officer present or higher authority.

1020. Gun Salutes to the Senior Officer Present.

1. A flag officer who is the senior officer present shall be saluted by the senior of one or more ships arriving in port.

2. When a flag officer embarked in a ship of his command arrives in port and is the senior officer present, or when a flag officer assumes command and becomes the senior officer present, he shall be saluted by the former senior officer present.

3. A gun salute shall be fired by his flagship when a flag officer who is the senior officer present assumes or is relieved of command, or is advanced in grade.

4. When a flag officer who is not the senior officer present assumes command, he shall fire a salute to the senior officer present.

5. The provisions of this article shall be subject to the provisions of article 1026.4 and shall apply, where appropriate, to officers of the naval service in command ashore.

1021. Gun Salutes to Foreign Flag Officers.

1. When a ship enters a port where there is present no officer of the naval service senior to the senior arriving officer, and finds displayed there, afloat or ashore, the flags of foreign flag officers of one or more nations, salutes shall be exchanged with the senior flag officer present of each nation.

2. The senior officer present of the United States Navy in a port shall exchange gun salutes

Officer	Gun Salute	
	Arrival	Departure
Chairman, Joint Chiefs of Staff	19	19
Chief of Staff, U.S. Army	19	19
Chief of Naval Operations	19	19
Chief of Staff, U.S. Air Force	19	19
Commandant of the Marine Corps	19	19
General of the Army	19	19
Fleet Admiral	19	19
General of the Air Force	19	19
Generals	17	17
Admirals	17	17
Naval or other military Governor, commissioned as such by the President, within the area of his jurisdiction . . . . .	....	17
Vice Admiral or Lieutenant General . . . . .	....	15
Rear Admiral or Major General . . . . .	....	13
Commodore or Brigadier General . . . . .	....	11
Other commissioned officers . . . . .	....	....

Figure A5-2.—Gun salutes rendered to commissioned military officers of the United States on the occasions of their official visits.

with the senior foreign flag officer displaying his flag in an arriving warship, provided such flag officer is the senior officer present of his nation.

3. Upon departure from port of the senior officer present of the United States Navy, his successor shall exchange gun salutes with the senior flag officer present of each foreign nation.

4. The senior officer present of the United States Navy shall exchange gun salutes with the senior officer present of a foreign nation when either hoists the flag of an increased grade.

5. In firing the salutes prescribed by this article, the following rules shall govern:

a. An officer of a junior grade shall fire the first salute.

b. When officers are of the same grade, the arriving officer shall fire the first salute.

c. Seniors shall be saluted in order of rank except that when firing salutes to two or more foreign officers of the same grade, the first salute fired to an officer in that grade shall be to the flag officer of the nationality of the port.

6. When a ship of the Navy falls in at sea with a foreign warship displaying the flag of a flag officer, an exchange of salutes shall be fired; the junior saluting first. Such salutes shall be exchanged only between the senior United States ship and the senior foreign ship. Should flag officers be of the same grade and their relative rank be unknown or in doubt, they should mutually salute without delay.

7. The provisions of this article shall be subject to the provisions of article 1026.4.

1022. Notification of Gun Salute.

Whenever practicable, an official or officer to be saluted shall be notified of the salute and the time that it is to be fired.

1023. Procedure During a Gun Salute.

1. The interval between guns in salutes normally shall be 5 seconds.

2. During the gun salute, persons on the quarterdeck, or in the ceremonial party, if ashore, shall render the hand salute; observers on deck, or in the vicinity of the ceremonial party

if ashore, shall stand at attention facing the personage, or if he is not in view, toward the ceremonial party, and if in uniform, shall salute.

3. Officers being saluted shall render the hand salute during the firing of the gun salute.

4. The boat or vehicle in which a person being saluted is embarked shall be stopped, if practicable to do so, during the firing of the gun salute.

1024. Inability to Render or Return a Gun Salute.

1. A gun salute shall not be fired when a return salute is required and cannot be fired, but shall be considered as having been rendered and returned.

2. In cases where, from any special cause, a ship, from which a salute in compliment to a foreign power or official may reasonably be expected, is unable to salute, the circumstances are to be explained immediately to the representative of such foreign power.

3. In cases where, from any special circumstances, the failure to salute cannot be explained without giving offense to a foreign power or official, salutes shall be fired by any ship which can do so with safety.

1025. Returning Gun Salutes.

1. The following rules shall be observed by United States ships and stations:

a. A salute fired to the nation by a foreign ship arriving in port shall be returned gun for gun.

b. A salute fired to a flag or general officer by a foreign ship or station shall be returned gun for gun.

c. A salute fired in honor of the President of the United States, or of the Secretary of State when acting as special representative of the President, shall not be returned.

d. A salute fired in honor of any official or officer on the occasion of an official visit or inspection shall not be returned.

e. A salute fired by his flagship or headquarters in honor of a flag or general officer shall not be returned.

f. A salute fired in honor of an anniversary, celebration, or solemnity shall not be returned.

g. Subject to the provisions of this article, a salute fired in honor of a United States officer or official shall be returned with the number of guns specified for the grade of the flag or general officer rendering the salute, or, if not a flag or general officer, with seven guns.

2. No return salute may be expected in the case of a salute fired by a United States ship or station in honor of a foreign sovereign, head of state, member of a reigning royal family, or special representative of a head of state, or on the occasion of a foreign anniversary, celebration, or solemnity, or on the occasion of an official visit; otherwise a salute fired in honor of a foreign nation, or of a foreign official or officer, may be expected to be returned gun for gun.

1026. Restrictions on Gun Salutes.

1. In the presence of the President of the United States, or the president, sovereign, or a member of the reigning royal family of a foreign nation, no gun salute which may be prescribed elsewhere in these regulations shall be fired to any other official of lesser rank of that nation.

2. When two or more officials or officers, each entitled to a gun salute, make an official visit in company to a ship or station, only the senior shall be saluted. If they arrive or depart at different times, each shall be rendered the gun salute to which he is entitled.

3. Salutes shall not be fired in ports or locations where they are forbidden by local regulations.

4. No official or officer, United States or foreign, except those entitled to 17 or more guns, shall be saluted by the same ship or station more than once in 12 months unless, and subject to the other provisions of these regulations, such official or officer has been advanced in grade, makes an official visit or inspection, or is on special duty in which international courtesy is involved or exceptional circumstances exist; in which latter case the commanding officer, in the absence of instructions, shall exercise his discretion.

Official	Uniform	Ruffles and flourishes	Music	Guard	Remarks
President _____	As prescribed by senior officer present.	4	National Anthem	Full _____	Man rail, unless otherwise directed by senior officer present. Crew at quarters.
Secretary of State when special foreign representative of the President.	_____ do _____	4	_____ do _____	_____ do _____	
Vice President _____	Of the day _____	_____	Hail Columbia _____	_____ do _____	Do.
Secretary of Defense, Deputy Secretary of Defense, or Secretary of the Navy, Director of Defense Research and Engineering.	_____ do _____	_____	National Anthem	_____ do _____	Do.
An Assistant Secretary of Defense, Under Secretary or an Assistant Secretary of the Navy.	_____ do _____	_____	_____ do _____	_____ do _____	Do.

Figure A5-3.—Passing honors between ships and, when practicable, between ships and naval stations.

5. No officer, except a flag or general officer, shall be saluted with guns except in return for a gun salute rendered by him.

6. No officer of the armed services, while in civilian clothes, shall be saluted with guns, unless such officer is at the time acting in an official civil capacity.

7. No salute shall be fired between sunset and sunrise, before 0800, or on Sunday except when international courtesy so dictates, or when related to death ceremonies. Subject to the provisions of this paragraph, a gun salute in honor of an official or officer who arrives before 0800 shall be fired at 0800; provided, that if the day is Sunday the salute shall be fired on Monday; and further provided, that the salute shall not be fired if the official or officer has departed meanwhile. In case of a gun salute at 0800, the first gun of the salute shall be fired immediately upon the completion of Morning Colors or the last note of the last national anthem.

1027. "Passing Honors" and "Close Aboard" Defined.

"Passing honors" are those honors, other than gun salutes, rendered on occasions when ships or embarked officials or officers pass, or are passed, close aboard. "Close aboard" shall mean passing within 600 yards for ships and 400 yards for boats. These rules shall be interpreted liberally, to ensure that appropriate honors are rendered.

1028. Passing Honors Between Ships.

1. Passing honors, consisting of sounding "Attention" and rendering the hand salute by all persons in view on deck and not in ranks, shall be exchanged between ships of the Navy and between ships of the Navy and the Coast Guard, passing close aboard.

2. In addition, the honors prescribed in the following table (figure A5-3) shall be rendered by a ship of the Navy passing close aboard a ship

Appendix V—HONORS AND CEREMONIES

Official	Ruffles and flourishes	Music	Guard	Remarks
President	4	National Anthem—	Full—	"Attention" sounded, and salute by all persons in view on deck. If directed by the senior officer present, man rail.
Secretary of State when special foreign representative of President.	4	— do —	— do —	"Attention" sounded, and salute by all persons in view on deck.
Vice President	4	Hail Columbia—	—	Do.
Secretary of Defense, Deputy Secretary of Defense, Secretary of the Navy, Director of Defense Research and Engineering, and Assistant Secretary of Defense, Under Secretary or an Assistant Secretary of the Navy.	4	Admiral's March—	— do —	Do.
Other Civil official entitled to honors on official visit.				Do.
Officer of an armed service				Do.

Figure A5-4.—Passing honors to officials and military officers embarked in boats.

or naval station displaying the flag of the officials indicated therein; and by naval stations, insofar as practicable, when a ship displaying such flag passes close aboard. These honors shall be acknowledged by rendering the same honors in return.

1029. Passing Honors to Officials and Officers Embarked in Boats.

1. The honors prescribed in this table (figure A5-4) shall be rendered by a ship of the Navy being passed close aboard by a boat displaying the flag or pennant of the ... (indicated) officials and officers.

2. Persons on the quarterdeck shall salute when a boat passes close aboard in which a flag officer, a unit commander or a commanding officer is embarked under the following circumstances:

a. When the officer in the boat is in uniform as indicated by the display of the national ensign in United States ports; or

b. When a miniature of a flag or pennant is displayed in addition to the national ensign in foreign ports.

1030. Passing Honors to Foreign Dignitaries and Warships.

1. The honors prescribed for the President of the United States shall be rendered by a ship of the Navy being passed close aboard by a ship or boat displaying the flag or standard of a foreign president, sovereign, or member of a reigning royal family, except that the foreign national anthem shall be played in lieu of the National Anthem of the United States.

2. Passing honors shall be exchanged with foreign warships passed close aboard and shall consist of parading the guard of the day, sounding "Attention," rendering the salute by all persons in view on deck, and playing the foreign national anthem.

1031. Sequence in Rendering Passing Honors.

1. "Attention" shall be sounded by the junior when the bow of one ship passes the bow or stern of the other, or, if a senior be embarked in a boat, before the boat is abreast, or nearest to abreast, the quarterdeck.

2. The guard, if required, shall present arms, and all persons in view on deck shall salute.

3. The music, if required, shall sound off.

4. "Carry on" shall be sounded when the prescribed honors have been rendered and acknowledged.

1032. Dispensing With Passing Honors.

1. Passing honors shall not be rendered after sunset or before 0800 except when international courtesy requires.

2. Passing honors shall not be exchanged between ships of the Navy engaged in tactical evolutions outside port.

3. The senior officer present may direct that passing honors be dispensed with in whole or in part.

4. Passing honors shall not be rendered by nor be required of ships with small bridge areas, such as submarines, particularly when in restricted waters.

1033. Crew at Quarters on Entering or Leaving Port.

The crew shall be paraded at quarters during daylight on entering or leaving port on occasions of ceremony except when weather or other circumstances make it impracticable or undesirable to do so. Ordinarily, occasions of ceremony shall be construed as visits that are not operational; at homeport when departing for or returning from a lengthy deployment; and visits to foreign ports not visited recently; and other special occasions so determined by a superior. In lieu of parading the entire crew at quarters, an honor guard may be paraded in a conspicuous place on weather decks.

1058. Authorized Display of Flags and Pennants.

1. When the national ensign is displayed on occasions other than those prescribed in these regulations, the manner of display shall be prescribed in Navy Department publications.

2. No flags or pennants, other than as prescribed by these regulations or as may be directed by the Secretary of the Navy, shall be displayed from a ship or craft of the Navy, or from a naval station, as an honor to a nation or an individual or to indicate the presence of any individual.

3. All flags and pennants displayed in accordance with these regulations shall conform to the pattern prescribed in Navy Department publications.

4. Flags or pennants of officers not eligible for command at sea shall not be displayed from ships of the United States Navy.

1059. Display of National Ensign, Union Jack and Distinctive Mark From Ships and Craft.

1. The national ensign, union jack, personal flag or pennant, or commission pennant shall be displayed from ships and craft of the Navy as specified in . . . (figure A5-5).

2. The distinctive mark of a ship or craft of the Navy in commission shall be a personal flag or command pennant of an officer of the Navy, or a commission pennant. The distinctive mark of a hospital ship of the Navy, in commission, shall be the Red Cross flag.

a. Not more than one distinctive mark shall be displayed by a ship or craft at one time, nor shall the commission pennant and the personal flag of a civil official be displayed at one time.

b. Except as prescribed in these regulations for certain occasions of ceremony and when civil officials are embarked, the distinctive mark shall be displayed day and night at the after masthead or, in a mastless ship, from the loftiest and most conspicuous hoist.

SHIPS OR CRAFT	NATIONAL ENSIGN DISPLAYED	UNION JACK DISPLAYED	PERSONAL FLAG, COMMAND PENNANT, OR COMMISSION PENNANT DISPLAYED
ACTIVE: In commission In service	Yes Yes	Yes Yes	Yes No ²
INACTIVE: In commission, in reserve In service, in reserve Out of commission, in reserve Out of service, in reserve	Yes Yes No ¹ No ¹	Yes Yes No No	Yes No No No
SPECIAL STATUS: In commission, special In service, special Out of commission, special Out of service, special	Yes Yes No ¹ No ¹	Yes Yes No No	Yes No No No

¹ Notional ensign shall be displayed if necessary to indicate the notional character of the ship or craft.

² Applies to display of commission pennant only.
A flag officer or unit commander embarked may display a personal flag or command pennant.

Figure A5-5.—Display of ensign, union jack, and distinctive mark from ships and craft.

3. When not underway the national ensign and the union jack shall be displayed from 0800 until sunset from the flagstaff and the jackstaff respectively. A ship which enters port at night shall, when appropriate, display the national ensign from the gaff at daylight for a time sufficient to establish her nationality; it is customary for other ships of war to display their national ensigns in return.

4. The national ensign shall be displayed during daylight from the gaff (or from the triatic stay in the case of those ships with mast-mounted booms and stays which would interfere with the hoisting, lowering or flying of the ensign) of a ship underway under the

following circumstances, unless or as otherwise directed by the senior officer present.

- Getting underway and coming to anchor.
- Falling in with other ships.
- Cruising near land.
- During battle.

5. The union jack displayed from the jackstaff shall be the size of the union of the national ensign displayed from the flagstaff.

6. The union jack shall be displayed at a yardarm to denote that a general court-martial or court of inquiry is in session.

1060. National Ensign at Commands Ashore.

The national ensign shall be displayed from 0800 to sunset near the headquarters of every command ashore, or at the headquarters of the senior when the proximity of headquarters of two or more commands makes the display of separate ensigns inappropriate. When an outlying activity of the command is so located that its governmental character is not clearly indicated by the display of the national ensign as prescribed above, the national ensign shall also be displayed at that activity.

1061. Display of National Ensign During Gun Salute.

1. A ship of the Navy shall display the national ensign at a masthead while firing a salute in honor of a United States national anniversary or officials, as follows:

a. At the main during the national salute prescribed for the third Monday in February and the 4th of July.

b. At the main during a 21-gun salute to a United States civil official, except by a ship displaying the personal flag of the official being saluted.

c. At the fore during a salute to any other United States civil official, except by a ship which is displaying the personal flag of the official being saluted.

2. During a gun salute, the national ensign shall remain displayed from the gaff or the flagstaff, in addition to the display of the national ensign prescribed in this article.

1062. Display of National Ensign in Boats.

The national ensign shall be displayed from waterborne boats of the naval service:

- a. When underway during daylight in a foreign port.
- b. When ships are required to be dressed or full-dressed.
- c. When going alongside a foreign vessel.
- d. When an officer or official is embarked on an official occasion.
- e. When a flag or general officer, a unit commander, a commanding officer, or a chief of staff, in uniform, is embarked in a boat of his command or in one assigned to his personal use.
- f. At such other times as may be prescribed by the senior officer present.

1063. Dipping the National Ensign.

1. When any vessel, under the United States registry or the registry of a nation formally recognized by the Government of the United States, salutes a ship of the Navy by dipping her ensign, it shall be answered dip for dip. If not already being displayed, the national ensign shall be hoisted for the purpose of answering the dip. An ensign being displayed at half-mast shall be hoisted to the truck or peak before a dip is answered.

2. No ship of the Navy shall dip the national ensign unless in return for such compliment.

3. Of the colors carried by a naval force on shore, only the battalion or regimental colors shall be dipped in rendering or acknowledging a salute.

4. Submarines, or such other ships of the line in which it would be considered hazardous

for personnel to do so, shall not be required to dip the ensign.

1064. Half-Masting the National Ensign and Union Jack.

1. In half-masting the national ensign it shall, if not previously hoisted, first be hoisted to the truck or peak and then lowered to half-mast. Before lowering from half-mast, the ensign shall be hoisted to the truck or peak and then lowered.

2. When the national ensign is half-masted, the union jack, if displayed from the jackstaff, shall likewise be half-masted.

3. Personal flags, command pennants, and commission pennants shall not be displayed at half-mast except as prescribed in these regulations for a deceased official or officer.

4. When directed by the President the national ensign shall be flown at half-staff at military facilities and naval vessels and stations abroad whether or not the national ensign of another nation is flown full-staff alongside that of the United States.

1065. Following Motions of Senior Officer Present in Hoisting and Lowering the National Ensign.

1. On board ship or at a command ashore, upon all occasions of hoisting, lowering, or half-masting the national ensign, the motions of the senior officer present shall be followed, except as prescribed for answering a dip or firing a gun salute.

2. A ship displaying the flag of the President, Secretary of Defense, Deputy Secretary of Defense, Secretary of the Navy, Director of Defense Research and Engineering, an Assistant Secretary of Defense, Under Secretary of the Navy, or an Assistant Secretary of the Navy shall be regarded as the ship of the senior officer within the meaning of the article.

1066. Personal Flags and Pennants Afloat.

1. Except as otherwise prescribed in these regulations, a flag officer or a unit commander

afloat shall display his personal flag or command pennant from his flagship. At no time shall he display it from more than one ship.

2. When a flag officer eligible for command at sea is embarked for passage in a ship of the Navy, his personal flag shall be displayed from such ship, unless there is already displayed from such ship the flag of an officer his senior.

3. When a civil official, in whose honor the display of a personal flag is prescribed during an official visit, is embarked for passage in a ship of the Navy, his personal flag shall be displayed from such ship.

4. A personal flag or command pennant may be hauled down during battle or at any time when the officer concerned, or the senior officer present, considers that it is desirable thus to render a flagship less distinguishable. When hauled down it shall be replaced with a commission pennant.

5. An officer of the Navy commanding a ship engaged otherwise than in the service of the United States shall not display a personal flag, command pennant, or commission pennant from such ship, or in the bow of a boat.

6. A ship underway shall not display a personal flag or command pennant unless a flag officer or unit commander is aboard. Should a flagship get underway during the absence of the flag officer or unit commander, the personal flag or command pennant shall be hauled down and replaced with a commission pennant.

1067. Broad or Burgee Command Pennant.

1. The broad or burgee command pennant shall be the personal command pennant of an officer of the Navy, not a flag officer, commanding a unit of ships or aircraft.

2. The broad command pennant shall indicate command of:

a. A division of battleships, aircraft carriers, or cruisers.

b. A force, flotilla, or squadron of ships or craft of any type.

c. An aircraft wing, carrier air wing, or carrier air group.

3. The burgee command pennant shall indicate command of:

a. A division of ships or craft other than battleships, aircraft carriers, or cruisers.

b. A major subdivision of an aircraft wing or group.

1068. Display of More Than One Personal Flag or Pennant Aboard Ship.

1. When the personal flag of a civil official is displayed aboard a ship of the Navy, a personal flag or command pennant of an officer of the Navy shall be displayed, if required, as follows:

a. Aboard a single-masted ship, at the starboard yardarm.

b. Aboard a two-masted ship, at the fore truck.

c. Aboard a ship with more than two masts, at the after truck.

2. When, in accordance with these regulations, the personal flag of a civil official and the personal flag or command pennant of an officer of the Navy are displayed at the starboard yardarm, the personal flag of the civil official shall be displayed outboard.

3. When two or more civil officials, for each of whom the display of a personal flag is prescribed, are embarked in the same ship of the Navy, the flag of the senior only shall be displayed.

1069. Display of a Personal Flag or Command Pennant When a National Ensign is at Masthead.

1. The President's flag, if displayed at a masthead where a national ensign is required to be displayed during an official visit or during periods of dressing or full-dressing ship, shall remain at that masthead to port of the United States national ensign and to starboard of a foreign national ensign.

2. Except as provided above, a personal flag or command pennant shall not be displayed at

the same masthead with a national ensign, but shall:

- a. During a gun salute, be lowered clear of the ensign.

- b. During an official visit, be shifted to the starboard yardarm in a single-masted ship and to the fore truck in a two-masted ship.

- c. During periods of dressing or full-dressing ship:

- (1) If displayed from the fore truck or from the masthead of a single-masted ship, be shifted to the starboard yardarm.

- (2) If displayed from the main truck, be shifted to the fore truck in lieu of the national ensign at that mast.

- (3) If displayed from the after truck of a ship with more than two masts, remain at the after truck in lieu of the national ensign at that mast.

1070. Personal Flags and Pennants Ashore.

1. A flag or general officer in command ashore shall display his personal flag day and night at a suitable and conspicuous place within his command. When such officer makes an official inspection at an outlying activity of his command, his flag shall, if practicable and appropriate, be shifted to such outlying activity.

2. A flag or general officer or unit commander of the operating forces whose headquarters are ashore shall display his personal flag or pennant day and night at a suitable and conspicuous place at his headquarters, unless it is displayed from a ship of his command.

3. When the points for display of two or more personal flags ashore are in such close proximity as to make their separate display inappropriate, that of the senior officer present only shall be displayed.

4. When a personal flag or a foreign ensign is required to be displayed ashore during the official visit of, or a gun salute to, a civil official or foreign officer, it shall be displayed from the normal point of display of a personal flag or

pennant of the officer in command, and the latter's flag or pennant shall be displayed at some other point within the command.

5. During the official inspection by a flag or general officer of a unit of his command ashore, his personal flag shall displace a personal flag or pennant of the officer in command.

6. If two or more civil officials, for each of whom the display of a personal flag is prescribed, are present officially at a command ashore at the same time, the flag of the senior only shall be displayed.

1071. Personal Flag or Command Pennant, When Officer Temporarily Succeeded in Command.

1. When a flag or general officer or a unit commander has been succeeded temporarily in command, as prescribed in these regulations, his personal flag or command pennant shall be hauled down. The officer who has succeeded temporarily to the command shall display the personal flag or command pennant to which he is entitled by these regulations.

2. In a foreign port upon the occasion of the absence of a flag officer from his command for a period exceeding 72 hours, the command subject to any directions from the flag officer, shall devolve upon the senior officer present of the unit who is eligible for the exercise of command at sea, but as standard procedure the flag officer's flag shall continue to be flown in his regular flagship until that ship is underway, at which time the personal flag shall be hauled down and not again hoisted until the flag officer returns to his flagship. Commanders in chief and fleet commanders have authority to modify this procedure with respect to their personal flags as the exigencies of the service require.

1072. Absence Indicators.

In ships, the absence of an official or officer whose personal flag or pennant is displayed, a chief of staff, or a commanding officer shall be indicated from sunrise to sunset by the display of an absence indicator as prescribed in current instructions.

1073. Personal Flags and Pennants of Officers in Boats and Automobiles and Aircraft.

1. An officer in command, or a chief of staff when acting for him, when embarked in a boat of the naval service on official occasions, shall display from the bow his personal flag or command pennant or, if not entitled to either, a commission pennant.

2. An officer entitled to the display of a personal flag or command pennant may display a miniature of such flag or pennant in the vicinity of the coxswain's station when embarked on other than official occasions in a boat of the naval service.

3. An officer entitled to the display of a personal flag or command pennant may, when riding in an automobile on an official occasion, display such flag or pennant forward on such vehicle.

4. An officer entitled to the display of a personal flag or command pennant may, when embarked in an aircraft on an official occasion, display such flag or pennant on both sides just forward and below the cockpit of such aircraft at rest.

1074. Flags of Civil Officials in Boats and Automobiles and Aircraft.

A flag shall be displayed in the bow of a boat in the naval service whenever a United States civil official is embarked on an official occasion, as follows:

a. A union jack for:

(1) A diplomatic representative of or above the rank of *chargé d'affaires*, within the waters of the country to which he is accredited.

(2) A governor general or governor commissioned as such by the President, within the area under his jurisdiction.

b. The consular flag for a consular representative.

c. The prescribed personal flag for other civil officials when such officials are entitled to the display of a personal flag during an official visit.

d. A civil official entitled to the display of a personal flag may, when riding in an automobile on an official occasion, display such flag forward on such vehicle.

e. A civil official entitled to the display of a personal flag may, when embarked in an aircraft, display a miniature of such flag on both sides just forward and below the cockpit of such aircraft at rest.

1075. Bow Insignia and Flagstaff Insignia for Boats.

1. A boat regularly assigned to an officer for his personal use shall carry insignia on each bow as follows:

a. For a flag or general officer, the stars as arranged in his flag.

b. For a unit commander not a flag officer, a replica of his command pennant.

c. For a commanding officer, or a chief of staff not a flag officer, an arrow.

2. Staffs for the ensign, and for the personal flag or pennant in a boat assigned to the personal use of a flag or general officer, unit commander, chief of staff, or commanding officer, or in which a civil official is embarked, shall be fitted at the peak with devices as follows:

a. A spread eagle: For an official or officer whose official salute is 19 or more guns.

b. A halberd

(1) For a flag or general officer whose official salute is less than 19 guns.

(2) For a civil official whose official salute is 11 or more guns but less than 19 guns.

c. A ball:

(1) For an officer of the grade, or relative grade, of captain in the Navy.

(2) For a career minister, a counselor or first secretary of embassy or legation, or a consul.

d. A star: For an officer of the grade, or relative grade, of commander in the Navy.

e. A flat truck:

(1) For an officer below the grade, or relative grade, of commander in the Navy.

(2) For a civil official not listed above, and for whom honors are prescribed for an official visit.

1076. Display of Foreign National Ensign During Gun Salutes.

1. While firing a salute to the nation upon entering a foreign port, returning such salute fired by a foreign warship, or firing a salute on the occasion of a foreign national anniversary, celebration, or solemnity, a ship shall display the ensign of the foreign nation at the main truck.

2. While firing a salute to a foreign dignitary or official entitled to 21 guns, a ship shall display the national ensign of such dignitary or official at the main truck. While firing a salute to the foreign official entitled to less than 21 guns, or to a foreign officer, or when returning a salute fired by a foreign officer, the national ensign of the foreign official or officer shall be displayed at the fore truck.

3. At a naval station, under the circumstances set forth in the preceding paragraphs of this article, the appropriate foreign ensign shall be displayed from the normal point of display of the personal flag or pennant of the officer in command, and the latter's flag or pennant shall be displayed at some other point within the command.

1077. Display of National Ensigns of Two or More Nations.

1. When the national ensigns of two or more nations are required to be displayed from the same masthead, the United States national ensign, if required, shall be displayed to starboard of all others. The national ensigns of other nations shall be displayed, starboard to port, in the alphabetical order of the names of the nations in the English language; except that the ensign of a foreign nation within whose

waters the ship is located, if displayed, shall be to starboard of other foreign ensigns.

2. While a salute is being fired under the foregoing conditions, the ensign of the nation being honored, or whose dignitary is being honored, shall be displayed alone.

3. In rendering honors, the national ensign of one nation shall not be displayed above that of another nation at the same masthead.

1078. Choice of Foreign Flag or Ensign in Rendering Honors.

In rendering honors requiring the display of a foreign flag or ensign:

a. In the case of a government having both a national flag and a national ensign (man-of-war flag), the national ensign shall be displayed except under the conditions set forth in this article.

b. In the case of a commonwealth, dominion, or similar government recognized as independent by the Government of the United States, which has a national flag of its own but which also employs the national ensign (man-of-war flag) of the empire or federation to which it belongs, the national flag of the commonwealth or dominion shall be displayed except when rendering honors to naval officers; in which latter case the national ensign (man-of-war flag) shall be displayed.

c. In the case of a government not recognized as independent by the Government of the United States, such as a protectorate or colony, the flag of the government exercising protective or colonial power shall be displayed except when otherwise directed by the Secretary of the Navy.

d. In the case of a government carried on by a joint mandate or trusteeship and having no distinct national flag of its own, the flags of the several countries comprising the mandate shall be displayed when rendering honors.

1079. Dressing and Full-Dressing Ship.

1. On occasions of dressing ship the largest national ensign with which the ship is furnished shall be displayed from the flagstaff, and except as prescribed for a ship displaying a personal flag or command pennant, a national ensign shall be displayed from each masthead. The national ensigns displayed at the masthead shall be of uniform size, except when, due to a substantial difference in heights of masthead, a difference in the size of national ensigns is appropriate.

2. On occasions of full-dressing ship, in addition to the dressing of the mastheads, a rainbow of signal flags, arranged in the order prescribed in Navy Department publications, shall be displayed, reaching from the foot of the jackstaff to the mastheads and thence to the foot of the flagstaff. Peculiarly masted or mastless ships shall make a display as little modified from the rainbow effect as is practicable.

3. When dressing or full-dressing ship in honor of a foreign nation, the national ensign of that nation shall replace the United States national ensign at the main, or at the masthead in the case of a single-masted ship; provided that when a ship is full-dressed or dressed in honor of more than one nation, the ensign of each nation shall be displayed at the main, or at the masthead in a single-masted ship.

4. Should half-masting of the national ensign be required on occasions of dressing or full-dressing ship, only the national ensign at the flagstaff shall be half-masted.

5. When full-dressing is prescribed, the senior officer present may direct that dressing be substituted if, in his opinion, the state of the weather makes such action advisable. He may also, under such circumstances, direct that the ensigns be hauled down from the mastheads after being hoisted.

6. Ships not underway shall be dressed or full-dressed from 0800 until sunset. Ships underway shall not be dressed or full-dressed.

1080. Senior Officer Present Afloat Pennant.

If two or more ships of the Navy are together in port, the senior officer present afloat pennant shall be displayed from the ship in

which the senior officer present afloat is embarked, except when the personal flag of the senior officer present afloat clearly indicates his seniority. It shall be displayed from the inboard halyard of the starboard main yardarm.

**SPECIAL CEREMONIES,
ANNIVERSARIES, AND SOLEMNITIES**

1081. Ships Passing Washington's Tomb.

When a ship of the Navy is passing Washington's tomb, Mount Vernon, Virginia, between sunrise and sunset, the following ceremonies shall be observed insofar as may be practicable: The full guard and band shall be paraded, the bell tolled, and the national ensign half-masted at the beginning of the tolling of the bell. When opposite Washington's tomb, the guard shall present arms, persons on deck shall salute, facing in the direction of the tomb, and "Taps" shall be sounded. The national ensign shall be hoisted to the truck or peak and the tolling shall cease at the last note of "Taps", after which the National Anthem shall be played. Upon completion of the National Anthem, "Carry On" shall be sounded.

1082. National Holidays.

1. The following shall be observed as holidays on board ships of the Navy and at naval stations and activities: New Year's Day, the 1st of January; Washington's Birthday, the third Monday in February; Memorial Day, the last Monday in May; Independence Day, the 4th of July; Labor Day, the first Monday in September; Columbus Day, the second Monday in October; Veterans Day, the fourth Monday in October; Thanksgiving Day, the fourth Thursday in November; and Christmas Day, the 25th of December, and such other days as may be designated by the President.

2. Whenever any of the above-designated dates falls on Saturday, the preceding day shall be observed as a holiday, and whenever such date falls on Sunday, the following day shall be observed.

1083. Ceremonies for National Holidays.

1. On Washington's Birthday, the third Monday in February, and on Independence Day, the 4th of July, every ship of the Navy in commission, not underway, shall full-dress ship. At noon each saluting ship, and each naval station equipped with a saluting battery, shall fire a national salute of 21 guns.

2. On Memorial Day, the last Monday in May, each saluting ship, and each naval station having a saluting battery, shall fire at noon a salute of 21 minute-guns. All ships and naval stations shall display the national ensign at half-mast from 0800 until the completion of the salute or until 1220 if no salute is fired or to be fired.

3. When the 4th of July occurs on Sunday, all special ceremonies shall be postponed until the following day.

1084. Foreign Participation in United States National Anniversaries or Solemnities.

1. Prior to celebrating a United States national anniversary, or observing a national solemnity, in a foreign place or in the presence of foreign warships, the senior officer present of the United States naval service shall give due notice to the foreign port authorities, and to the senior officer of each nationality present, of the time and manner of conducting the celebration of solemnity, and shall, as appropriate, invite their participation therein. An officer shall be sent to thank the foreign authorities or ships which participate in such celebration or solemnity.

2. When foreign troops participate in parades within the territorial jurisdiction of the United States, they shall be assigned a position of honor ahead of United States troops, except that a small detachment of United States troops will immediately precede the foreign troops as a guard of honor.

3. On occasions when troops of two or more foreign nations participate, the troops of the nation in whose honor the parade is held will be assigned a position ahead of all others,

otherwise the order of precedence among foreign troops will be determined, as appropriate, by:

a. The relative ranks of the commanders of the forces from which the parade detachments are drawn; or

b. The relative ranks of the commanders of the parade detachments; or

c. The alphabetical order in the English language of the names of the nations concerned.

1085. Observance of Foreign Anniversaries and Solemnities.

1. In a foreign place, or when in company with a foreign warship, when a national anniversary or solemnity is being observed by foreign port authorities or a foreign warship, a ship of the Navy shall, upon official invitation, follow the example of the foreign authority or warship in full-dressing or dressing ship, firing salutes, and half-masting ensigns. Salutes shall not exceed 21 guns unless the senior officer present deems it proper to fire a larger number in order to participate properly in the ceremony, or to avoid giving offense. Upon all such occasions efforts shall be made to accord, so far as practicable, with the foreign authorities in the time and manner of conducting the ceremonies.

2. Uniform accoutrements of mourning, including mourning badges or bands, may be worn on the uniform when appropriate, or when directed by competent authority, by persons in the naval service who are stationed in, or who are officially visiting, a foreign nation during the period that the foreign government ordains as the period of national mourning.

1086. Ships Passing *USS ARIZONA* Memorial.

When a ship of the Navy is passing the *USS ARIZONA* Memorial, Pearl Harbor, Hawaii, between sunrise and sunset, passing honors consisting of sounding "Attention" and rendering the hand salute by all persons in view on deck and not in ranks shall be executed by that ship.

DEATHS AND FUNERALS

1087. Death of United States Civil Official.

1. Upon the death of a United States Civil Official listed below (see figure A5-6), the ... (indicated) ceremonies shall be observed.

1088. Death of a Person in the Military Services.

1. Upon the death of a person in the military services, the ... ceremonies (figure A5-7) shall be observed.

2. At joint installations or commands the procedures prescribed by the responsible military commanders or the executive agent will be executed uniformly by all the United States military units present.

3. The national ensign shall be half-masted upon receipt of notification of death of one of the designated officials from any reliable source, including news media.

4. If he deems it appropriate, the senior officer present may direct that the ceremonies prescribed in this article be observed during the transfer of the body of the deceased from the ship or naval station, rather than during the funeral.

5. In the event of a military funeral of a person in the naval service on the retired list, ceremonies as prescribed in this article shall be rendered insofar as may be practicable.

6. On the occasion of conducting the funeral of a person in the naval service near posts, stations, or ships of other armed services of the United States, or the Coast Guard, the commanding officers thereof shall be duly notified of the time and the honors to be rendered by ships of the Navy or by naval stations.

7. During the funeral of a flag officer of the Coast Guard, or a general officer of the armed services of the United States, other than naval, and other than those listed in paragraph 1 of this article, at a place where there is a naval station, or where one or more ships of the Navy are present, the ensigns of such stations and ships shall be half-masted during the funeral service

and for 1 hour thereafter; and minute-guns, of the number prescribed for the funeral of the deceased by the regulations of the service to which he belonged, shall be fired by the naval station, if practicable, and by the senior saluting ship present.

1089. General Provisions Pertaining to Funerals.

1. If there is no chaplain or clergyman available, the commanding officer, or his representative, shall conduct the funeral service.

2. There shall be six pallbearers and six body bearers. The pallbearers shall, if practicable, be of the same grade or rating as the deceased. If a sufficient number of foreign officers of appropriate grade attend the funeral, they may be invited to serve as additional pallbearers.

3. The wearing of the mourning badge is discretionary for those in attendance at a funeral and shall be worn by the escort for a military funeral as prescribed in the respective Uniform Regulations.

4. Boats taking part in a funeral procession shall display the national ensign at half-mast. If the deceased was a flag or general officer, or at the time of his death a unit commander, or a commanding officer of a ship, his flag or command pennant, or a commission pennant, shall be draped in mourning and displayed at half-mast from a staff in the bow of the boat carrying the body. A funeral procession of boats shall, in general, be formed in the order prescribed in the *Landing Party Manual, U.S. Navy*, for a funeral procession on shore.

5. The casket shall be covered with the national ensign, so placed that the union is at the head and over the left shoulder of the deceased. The ensign shall be removed from the casket before it is lowered into the grave or committed to the deep.

6. Persons in the naval service shall salute when the body is carried past them, while the body is being lowered into the grave or committed to the deep, and during the firing of volleys and the sounding of "Taps."

7. Three rifle volleys shall be fired after the body has been lowered into the grave or committed to the deep, following which "Taps"

NAVAL ORIENTATION

Official	National ensign half-masted		Gun salute	
	By—	Period of Display	Fired by	How and when fired
President, former President, or a President-elect.	All ships and stations of the Department of the Navy.	For 30 days from the day of death.	(a) All saluting ships, not underway, in ports under United States jurisdiction, and each naval station having a saluting battery. (b) Senior saluting ship present in each port under United States jurisdiction, and each naval station having a saluting battery.	1 gun every half hour from 0800 till sunset on day after receipt of notice of death. 21 minute-guns fired at noon on day of funeral.
Vice President, Chief Justice or retired Chief Justice of the United States, or the Speaker of the House of Representatives.	— Do —	For 10 days from the day of death.	(a) All saluting ships, not underway, in ports under United States jurisdiction, and each naval station having a saluting battery. (b) Senior saluting ship present, and naval station having saluting battery, in port where funeral occurs.	Minute-guns equal in number to official salute of deceased, fired at noon on day after receipt of notice of death. Minute-guns equal in number to official salute of deceased, fired at noon on day of funeral.
An Associate Justice of the Supreme Court, a member of the Cabinet, a former Vice President, the President pro tempore of the Senate, the Majority Leader of the Senate, the Minority Leader of the senate, the Majority Leader of the House of Representatives, the Minority Leader of the House of Representatives, the Secretary of the Army, the Secretary of the Navy, or the Secretary of the Air Force.	— Do —	From the day of death until interment.	— Do —	Do.
Governor of a state, territory, commonwealth or possession.	All ships and stations in such state, territory, commonwealth or possession.	— Do —	Ship and station as designated by senior officer present in port where funeral honors are directed to be rendered.	Do.
United States Senator, Representative, Territorial Delegate, or the Resident Commissioner from the Commonwealth of Puerto Rico.	All ships and stations in the metropolitan area of the District of Columbia, and All ships and stations in the applicable state, congressional district, territory or commonwealth.	On the day of death and the following day. From the day of death until interment.	— Do — — Do —	Do. Do.

Figure A5-6.—Ceremonies observed upon the death of a United States civil official.

Appendix V—HONORS AND CEREMONIES

Official	National ensign half-masted		Gun salute	
	By—	Period of Display	Fired by	How and when fired
Civil official not listed above, but entitled to gun salute on official visit.	Ships and stations in the vicinity when directed by senior officer present or other competent authority to join in funeral honors.	From 0800 till sunset on day of funeral.	Ship and station as designated by senior officer present in port where funeral honors are directed to be rendered.	Do.
Vice President, Chief Justice or retired Chief Justice of the United States, or the Speaker of the House of Representatives.	do	When displayed: For 10 days from the day of death.	(a) All saluting ships, not underway, in ports under United States jurisdiction, and each naval station having a saluting battery. (b) Senior saluting ship present, and naval station having saluting battery, in port where funeral occurs.	Minute-guns equal in number to official salute of deceased, fired at noon on day after receipt of official notice of death. Minute-guns' equal in number to official salute of deceased, fired at noon on day of funeral.
An Associate Justice of the Supreme Court, a member of the Cabinet, a former Vice President, the Secretary of the Army, the Secretary of the Navy, or the Secretary of the Air Force.	do	From the day of death until interment.	do	Do.
Governor of a state, territory, commonwealth or possession.	All ships and stations in such state, territory, commonwealth or possession.	do	Ship and station as designated by senior officer present in port where funeral honors are directed to be rendered.	Do.
United States Senator, Representative, Territorial Delegate, or the Resident Commissioner from the Commonwealth of Puerto Rico.	All ships and stations in the metropolitan area of the District of Columbia, and All ships and stations in the applicable state, congressional district, territory or commonwealth.	On the day of death and the following day. From the day of death until interment.	do do	Do. Do.
Civil official not listed above, but entitled to gun salute on official visit.	Ships and stations in the vicinity when directed by senior officer present or other competent authority to join in funeral honors.	When displayed: From 0800 till sunset on day of funeral.	Ship and station as designated by senior officer present in port where funeral honors are directed to be rendered.	Do.

Figure A5-6.—Ceremonies observed upon the death of a United States civil official—continued.

shall be sounded by the bugle; except that in a foreign port, when permission has not been obtained to land an armed escort, the volleys shall be fired over the body after it has been lowered into the boat alongside.

8. During burial at sea, the ship shall be stopped, if practicable, and the ensign shall be displayed at half-mast from the beginning of the funeral service until the body has been committed to the deep. Further display of the

Deceased	National ensign half-masted		Personal flag or command pennant of deceased, commission pennant of ship commanded	Gun Salute	
	By—	Period of Display		Fired by—	How and when fired
Chairman or former Chairman of the Joint Chiefs of Staff, United States military officer of 5-star rank, Chief or former Chief of Naval Operations, Commandant or former Commandant of the Marine Corps.	All ships and stations of the Department of the Navy.	From the time of death until sunset of the day of the funeral.	Half-masted from time of death until sunset of day of funeral, or removal of the body, and then hauled down.	Flagship or station commanded; or as designated by senior officer present.	Minute-guns equal in number to official salute of deceased, fired during funeral.
Flag or general officer (Marine) in command.	All ships present, not under way, and by naval stations in vicinity.	From time of death until sunset of day of funeral; or removal of the body.	— do —	— do —	Do.
Flag or general officer (Marine) not in command.	— do —	From the beginning of the funeral until sunset of that day.	—	Ship or station designated by senior officer present.	Do.
Unit commander not a flag officer; commanding officer.	— do —	— do —	Half-masted from time of death until sunset of day of funeral, or removal of the body, and then hauled down; except commission pennant rounded up.	Flagship, or ship or station commanded; or as designated by senior officer present.	7 minute-guns, fired during funeral.
All other persons in the naval service.	— do —	During funeral and for 1 hour thereafter.	—	—	

Figure A5-7.—Ceremonies observed upon the death of a person in the military service.

ensign at half-mast may be prescribed according to circumstances by the senior officer present.

9. Funeral honors shall not be rendered between sunset and sunrise. When it is necessary to bury the dead at night, such funeral services as are practicable shall take place.

1090. Funeral Escorts.

1. An escort under arms shall, when practicable, accompany the funeral cortege to the place of interment.

2. The funeral escort for a President, Vice President, Secretary of Defense, Secretary of the Navy, Under Secretary of the Navy, Assistant Secretary of the Navy, Fleet Admiral, Chief of Naval Operations, or Commandant of the Marine Corps shall be prescribed by the Secretary of the Navy.

3. Unless otherwise prescribed by the senior officer present, the funeral escort for other persons in the Navy or the Marine Corps shall comprise commands equivalent to the following infantry units, insofar as is practicable with the Navy or Marine Corps forces available.

Appendix V—HONORS AND CEREMONIES

Admiral, Navy and
General, Marine Corps 1 Battalion

Other Flag Officers, Navy
and General Officers,
Marine Corps 1 Company

Captain, Navy and
Colonel, Marine Corps 1 Company

Other Commissioned
Officers, Warrant Officers
and Midshipmen of the
Navy and Marine Corps 1 Platoon

Chief Petty Officer, Navy
and Gunnery Sergeant
and above, Marine Corps 2 Squads

Other enlisted persons,
Navy and Marine Corps 1 Squad

4. The grade or rating of the escort commander normally shall be the same as, or higher than, that of the deceased.

1091. Display of Personal Flag, Command Pennant, Or Commission Pennant in Funerals on Shore.

If the deceased was a flag or general officer, or at the time of his death, a unit commander or commanding officer of a ship, his personal flag or command pennant, or commission pennant, shall be draped in mourning and carried immediately in advance of the body in the funeral procession to the grave.

1092. Burial in a Foreign Place.

Before a person in the naval service is buried in a foreign place, the senior officer present shall arrange with the local authorities for the interment of the body and shall also request permission to parade an escort under arms. He shall inform the senior foreign officers present and the appropriate local officials of the time and place of the funeral, and of the funeral honors to be rendered by United States forces present.

1093. Death of Diplomatic, Consular, or Foreign Official.

1. On the death in a foreign place of a diplomatic or consular representative of the United States, the senior officer present shall, as circumstances permit, arrange for appropriate participation in the funeral ceremonies by persons in the naval service.

2. When the senior officer present receives official notice of the death or funeral of a foreign official, or member of a foreign armed service, he shall, as circumstances warrant and as international courtesy demands, direct visits of condolence to be made, and arrange for participation by persons in the naval service in the funeral ceremonies.

1094. Transporting Body of Deceased Official.

When a ship of the Navy is transporting the body of a deceased official, the honors and ceremonies prescribed for an official visit shall, if directed by the senior officer present or higher authority, be rendered when the body is received aboard or leaves the ship.

APPENDIX VI

AWARDS

Fundamentally, military decorations and awards are for the purpose of publicly recognizing and rewarding extraordinary performance of duty, exceptionally meritorious service, conspicuously outstanding acts of heroism, and other acts or services which are above and beyond that normally expected and which distinguish the individual or unit among those performing similar acts or services.

DEFINITIONS

Award: An all-inclusive term covering any decoration, medal, badge, ribbon or an attachment thereof bestowed on an individual.

Unit award: An award made to an operating unit and worn only by members of that unit who participated in the cited action.

Service award: An award made to those who have participated in designated wars, campaigns, expeditions, etc., or who have fulfilled in a creditable manner specified service requirements.

Decoration: An award bestowed upon an individual for a specific act of gallantry or meritorious service.

Medal: An award presented to an individual for performance of certain duties, acts, or services. It consists of a suspension ribbon made in distinctive colors and from which hangs a medallion.

Miniature medal: A replica of a large medal, made to a scale one-half that of the original. (The Medal of Honor is not made in miniature.)

Badge: An award to an individual for some special proficiency apart from the duties of his

grade or rate. It consists of a medallion hung from a bar or from bars.

Ribbon or ribbon bar: Consists of a portion of the suspension ribbon of a medal and is worn in lieu of the medal. The dimensions of all ribbons are 1-3/8 inches by 3/8 inch.

Attachment: Any appurtenance such as a star, clasp, or device worn on the suspension ribbon of a medal or on the ribbon (ribbon bar).

ORDER OF PRECEDENCE

Awards issued for wear by naval personnel are worn in a set precedence according to the following categories:

1. Military decorations.
2. Unit awards.
3. Nonmilitary decorations.
4. Campaign and service awards.
5. Foreign decorations, non-U.S. awards, foreign unit awards, and foreign service awards.
6. Marksmanship awards.
7. Awards of military societies and other organizations.

Figure A6-1 indicates the order of precedence for individual military decorations and unit awards.

Nonmilitary decorations are worn in the order earned. These include, but are not limited to, the—

Gold Life Saving Medal (awarded by Secretary of Transportation)
Silver Life Saving Medal (awarded by Secretary of Transportation)

Appendix VI—AWARDS

Decoration	Awarded to	Awarded for	Time limits
Medal of Honor	A member of the naval service who distinguishes himself conspicuously by gallantry and intrepidity at the risk of his life above and beyond the call of duty (1) while engaged in an action against an enemy of the United States; (2) while engaged in military operations involving conflict with an opposing foreign force; or (3) while serving with friendly foreign forces engaged in an armed conflict against an opposing armed force in which the United States is not a belligerent party.	Combat.	Must be recommended within 3 years from date of act and awarded within 5 years of act.
Navy Cross	A person serving in any capacity with the Navy or Marine Corps who distinguishes himself by extraordinary heroism not justifying the award of a Medal of Honor, while engaged in one of the types of operations required for award of the Medal of Honor.	Combat.	Do.
Defense Distinguished Service Medal	Any military officer of the United States who is assigned to joint staffs or other joint activities of the Department of Defense and who distinguishes himself by exceptionally meritorious service in a position of unique and great responsibility. It shall not be awarded to any individual for a period of service for which a Service Distinguished Service Medal or similar decoration has been awarded.	Combat or noncombat.	Do.
Distinguished Service Medal	A person serving in any capacity with the Navy or Marine Corps who distinguishes himself by exceptionally meritorious service to the United States in a duty of great responsibility.	Combat or noncombat.	Do.

Figure A6-1.—Order of precedence for individual military decorations and unit awards.

Decoration	Awarded to	Awarded for	Time limits
Silver Star Medal	A person serving in any capacity with the Navy or Marine Corps who is cited for gallantry in action that does not warrant a Medal of Honor or Navy Cross, while engaged in one of the types of operations required for award of the Medal of Honor.	Combat.	Do.
Defense Superior Service Medal	Any member of the Armed Forces of the United States who has rendered superior meritorious service in a position of significant responsibility with the Officer of the Secretary of Defense, the Organization of the Joint Chiefs of Staff, a specified or unified command, a Defense agency, or such other joint activity as may be designated by the Secretary of Defense.	Combat or noncombat.	Do.
Legion of Merit	A member of the armed forces of the United States or of a friendly foreign nation who distinguishes himself by exceptionally meritorious conduct in performing outstanding services.	Combat or noncombat.	Do.
Distinguished Flying Cross	A person serving in any capacity with the Navy or Marine Corps who distinguishes himself by heroism or extraordinary achievement while participating in aerial flight.	Combat or noncombat.	Must be recommended within 2 years from date of act and awarded within 3 years of act.
Navy and Marine Corps Medal	A person serving in any capacity with the Navy or Marine Corps who distinguishes himself by heroism not involving actual conflict with the enemy.	Noncombat.	Must be recommended within 3 years from date of act and awarded within 5 years of act.
Bronze Star Medal	A person serving in any capacity with the Armed Forces of the United States who distinguishes himself by heroic or meritorious achievement or service not involving participation in aerial flight, while engaged in one of the types of operations required for award of the Medal of Honor.	Combat or military operations against the enemy or an opposing armed force.	Do.

Figure A6-1.—Order of precedence for individual military decorations and unit awards—Continued.

Appendix VI—AWARDS

Decoration	Awarded to	Awarded for	Time limits
Meritorious Service Medal	Any member of the Armed Forces of the United States who has distinguished himself by outstanding noncombat meritorious achievement or service to the United States. The acts or services rendered by an individual must have been comparable to that required for the Legion of Merit but in a duty of lesser responsibility.	Noncombat.	Do.
Air Medal	A person serving in any capacity with the Armed Forces of the United States who distinguishes himself by heroic/meritorious achievement in aerial flight.	Combat or noncombat.	Do.
Joint Service Commendation Medal	A member of the Armed Forces who distinguishes himself after 1 January 1963 by meritorious achievement or service while assigned to joint activities as specified by the Secretary of Defense.	Combat or noncombat.	No time limit.
Navy Commendation Medal	A person serving in any capacity with the Navy or Marine Corps (including foreign military personnel) who distinguishes himself by heroic or meritorious service or achievement.	Combat or noncombat.	Must be recommended within 3 years from date of act and awarded within 5 years of act.
Navy Achievement Medal	A lieutenant commander/major or below serving in any capacity with the Navy or Marine Corps who distinguishes himself by outstanding professional achievement and/or leadership.	Noncombat.	Do.
Purple Heart	A person serving in any capacity with the Armed Forces of the United States who is killed or wounded (1) in action against an enemy of the United States; (2) in action with an opposing armed force of a foreign country in which Armed Forces of the United States are engaged; (3) while serving with friendly foreign forces engaged in an armed conflict against an opposing armed force in	Combat.	No time limit.

Figure A6-1.—Order of precedence for individual military decorations and unit awards—Continued.

Decoration	Awarded to	Awarded for	Time limits
Purple Heart (Continued)	which the United States is not a belligerent party; (4) as a result of an act of any such enemy or opposing armed force; (5) as a result of an act of any hostile foreign force; (6) as an indirect result of enemy action; or (7) as a result of maltreatment inflicted by captors while a prisoner of war.	Combat.	No time limit.
Combat Action Ribbon	A captain/colonel or below of the Navy, Marine Corps, or Coast Guard when the Coast Guard or units thereof operate under control of the Navy, who has actively participated in ground or surface combat. The individual must have participated in a bona fide ground or surface combat firefight or action during which he was under enemy fire and his performance while under fire must have been satisfactory. (Not awarded for aerial combat.)	Combat.	No time limit.
Unit awards:			
Presidential Unit Citation	Units of the Armed Forces of the United States and units of armed forces of friendly foreign nations serving with the Armed Forces of the United States for outstanding performance in action.	Combat.	Must be recommended within 3 years from date of act or service and awarded within 5 years from date of act or service.
Navy Unit Commendation	Units of the Armed Forces of the United States for outstanding heroism in action against the enemy or by extremely meritorious service not involving combat but in support of military operations.	Combat and in support of military operations.	Do.
Meritorious Unit Commendation	Units of the Armed Forces and units of friendly foreign nations serving with the Armed Forces of the United States for valorous or meritorious achievement.	Combat or noncombat.	Do.

Figure A6-1.—Order of precedence for individual military decorations and unit awards—Continued.

NASA Distinguished Service Medal
National Security Medal (awarded by the President)
Presidential Medal of Freedom (awarded by the President)

Listed below in the order of their precedence are the service and campaign awards authorized for wear on the naval uniform after nonmilitary decorations.

Good Conduct Medals (Navy and Marine Corps)
Naval Reserve Meritorious Service Medal
Organized Marine Corps Reserve Medal
Expeditionary Medals (Navy and Marine Corps)
China Service Medal
American Defense Service Medal
American Campaign Medal
European-African-Middle Eastern Campaign Medal
Asiatic Pacific Campaign Medal
World War II Victory Medal
Navy Occupation Service Medal
Medal for Humane Action
National Defense Service Medal
Korean Service Medal
Antarctica Service Medal
Armed Forces Expeditionary Medal
Vietnam Service Medal
Armed Forces Reserve Medal
Naval Reserve Medal
Marine Corps Reserve Ribbon

Personnel who have been specifically authorized by law to accept decorations from foreign governments may wear them in the order of their receipt after all U.S. service awards.

The following non-U.S. service and foreign units awards, listed in order of precedence, do not require individual legislative authorization and may be worn immediately after foreign decorations.

Non-U.S. service awards:

Philippine Defense Ribbon (no medal authorized)
Philippine Liberation Ribbon (no medal authorized)

Philippine Independence Ribbon (no medal authorized)
United Nations Service Medal
United Nations Medal

Foreign service awards:

Republic of Vietnam Campaign Medal

Foreign unit awards (no medals authorized):

Philippine Presidential Unit Citation
Korean Presidential Unit Citation
Vietnam Presidential Unit Citation
Republic of Vietnam Meritorious Unit Citation Gallantry Cross Color
Republic of Vietnam Meritorious Unit Citation Civil Actions Color

As a general policy, the Department of the Navy does not permit naval personnel to accept service medals from foreign governments. The only such award authorized for wear is the Republic of Vietnam Campaign Medal.

The following marksmanship awards, in order of precedence, are authorized for wear on the uniform:

U.S. Distinguished International Shooter Badge
Distinguished Marksman Badge
Distinguished Pistol Shot Badge
National Trophy Match Rifleman Badge (Gold)
National Trophy Match Pistol Shot Badge (Gold)
Navy Rifleman Badge (Gold)
Navy Pistol Shot Badge (Gold)
Fleet Rifleman Badge (Gold)
Fleet Pistol Shot Badge (Gold)
National, Navy, and fleet badges continue in the order above with silver taking precedence over bronze
Expert Rifleman Medal
Expert Pistol Shot Medal
Navy Pistol Marksmanship Award
President's Hundred Award (enlisted only)

Listed below are military societies and other organizations that issue awards authorized for wear on the naval uniform. Medals and ribbons

are worn in the order earned after all service awards. Badges are worn after marksmanship badges.

Regular Army and Navy Union
Army and Navy Union of the United States
American Legion, Veterans of Foreign Wars,
or other officially recognized veterans
organizations
Corps and Division of the Civil and Spanish
American Wars
Medical scientific societies

MANNER OF WEARING AWARDS

Medals, ribbons, and attachments must be worn on appropriate uniforms and in the manner explained below.

LARGE MEDALS

Full-size medals are worn on full dress uniforms. The holding bar of the lowest row of medals is located approximately 1/4 inch above the left breast pocket and clear of the lapel. The medal bottoms dress in a horizontal line, as in figure A6-2. When more than one row is worn, no row shall contain a lesser number than the row above. As far as possible, except for the top row, all rows contain the same number of medals (as in figure A6-3), three medals side by side or up to five medals overlapping. Overlapping is equal and the right, or inboard, medal shows in full. Upper rows of medals are mounted so as to cover the suspension ribbons of the medals below. The arrangement of awards is by seniority from top down and from inboard to outboard. All medals may be worn, but a minimum of five must be worn by those possessing five or more. The Medal of Honor, worn when either large or miniature medals are prescribed, is worn from a suspension ribbon placed around the neck.

MINIATURE MEDALS

Miniature medals are worn with evening dress and dinner dress uniforms. On male tail

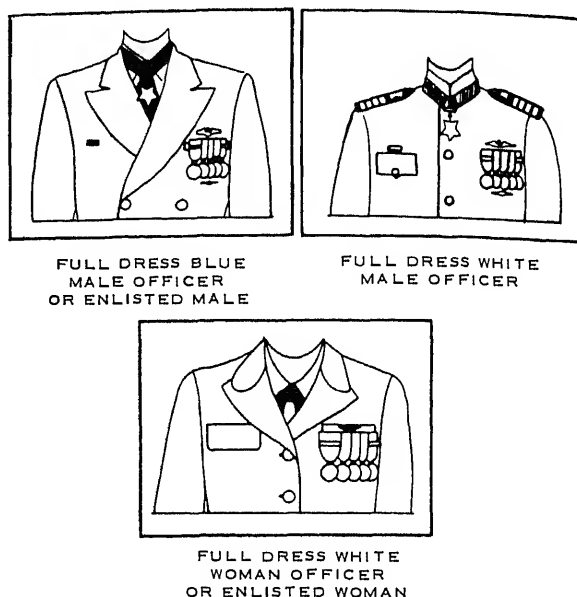


Figure A6-2.—Proper display of large medals.

coats and mess jackets, the holding bar of the lowest row of medals is positioned on the left lapel 3 inches below the notch (figure A6-4) and centered on the lapel. If the bar exceeds a length of 2-3/4 inches, the bar extends over the outboard edge of the lapel. When worn on a male officer's blue or white service coat, the lowest bar is centered immediately above the left breast pocket. On a woman officer's uniform, the lowest bar is centered on the left pocket flap of the blue and white service coat. On other uniforms, it is attached in the same relative position.

The number of miniatures worn on one holding bar may not exceed 11. When more than 11 are worn, they are arranged in 2 rows; if more than 22, in 3 rows and in the same symmetrical manner as for large medals. The miniatures may be equally overlapped up to 50%, the right (inboard) medal showing in full.

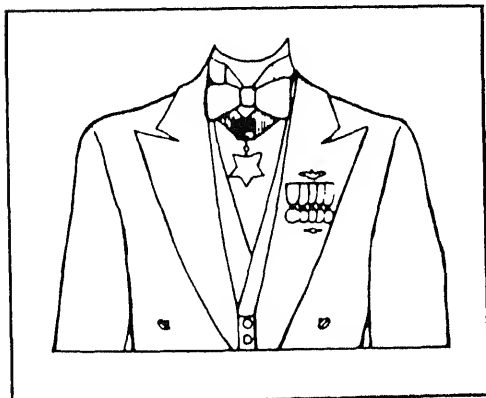
SERVICE RIBBONS

Service ribbons are worn in the order of their precedence (from top down and from inboard outboard). The ribbons are worn with

Number of Medals to be Worn	Prescribed Number of Rows	Number of Medals Per Row			
		Top Row	2d Row	3d Row	4th Row
1-5	1 row only	1-5			
6	2	3	3		
7	2	3	4		
8	2	4	4		
9	2	4	5		
10	2	5	5		
11	3	3	4	4	
12	3	4	4	4	
13	3	4	4	5	
14	3	4	5	5	
15	3	5	5	5	
16 and so on	4	4	4	4	4

134.121

Figure A6-3.—Manner of wearing large medals.

EVENING DRESS BLUE
MALE OFFICER

434.118

Figure A6-4.—Proper display of miniature medals.

all service dress uniforms and on the dinner dress uniform of enlisted women. There are no intervals between ribbons or rows of ribbons. They may be sewed to the uniform or arranged on holding bars to be pinned to the uniform. They may not be impregnated with preservatives that change their appearance or be worn with transparent covers.

On male uniforms, the lower edge of the bottom row of ribbons is centered approximately 1/4 inch above the left breast pocket. On women's blue and white uniforms, one or two rows are centered on the left pocket flap; additional rows are worn immediately above the flap. On women's light-blue jackets, ribbons appear in the same relative position as on their blue and white coats.

Three ribbons or less are worn in a single horizontal row. When more than three are authorized, they are worn in rows of three each. If not in multiples of three, the uppermost row

contains the lesser number, the center of the row to be over the center of the row beneath. A minimum of six ribbons must be worn by those possessing six or more; all may be worn if desired.

ATTACHMENTS

A variety of stars, devices, and clasps are authorized for wear on medal suspension ribbons and corresponding service ribbons. Figure A6-5 shows the manner in which they are displayed.

Stars

Stars are of three types: gold, bronze, and silver.

A gold star is worn in lieu of a second or subsequent award of a military decoration.

Bronze stars indicate (1) service in a cited unit at the time of an action for which the unit was awarded a unit citation, (2) second and subsequent awards of a campaign or service medal, (3) the number of battle engagements during a given campaign for which a medal is authorized, and (4) first individual award of the Air Medal.

A silver star is authorized for wear in lieu of five gold or bronze stars.

A single star is centered on the ribbon. If more than one star is worn, they are placed in a horizontal line close to and symmetrically about the center of the ribbon. The silver star is located as near the center of the ribbon as symmetry permits. A star worn in addition to a silver star or letter device is worn on the wearer's right, a second star is worn to his left, and so on. When medals overlap, all stars may be worn to the wearer's left. Stars are placed on the ribbon with two rays pointing down.

Letter Devices

Metal letter devices, when authorized, are worn centered on the appropriate ribbon.

The bronze letter A on the American Defense Service Medal indicates service on ships in actual or potential belligerent contact with

Axis forces in the Atlantic Ocean between 22 June and 7 December 1941. No star is worn on a ribbon displaying the A.

Personnel entitled to the Presidential Unit Citation awarded the *USS NAUTILUS* (SSN 571) for having participated in the cruise of that vessel under the Arctic icecap, from 22 July to 5 August 1958, are authorized to wear a gold letter N centered on the citation ribbon.

Individuals awarded the Legion of Merit, Bronze Star Medal, Joint Service Commendation Medal, Navy Achievement Medal, or the Commendation Medal for acts or services involving direct participation in combat operations may be authorized to wear a bronze letter V.

A silver W indicates service in the defense of Wake Island, 7 to 22 December 1941.

Clasps

Clasps, when authorized, are worn only on suspension ribbons of large medals although stars or other devices worn in lieu of clasps may be displayed on the suspension ribbons of miniature medals and on ribbon bars.

Currently, authorized clasps (of which two are shown in figure A6-5), include—

1. "Asia" and "Europe" clasps, denoting service in those areas, to be worn with the Navy Occupation Service Medal.

2. "Fleet" and "Base" clasps, to indicate service in the fleet or at overseas bases, to be worn with the American Defense Service Medal.

3. "Wake Island" clasp, authorized for wear with the Navy Expeditionary Medal by personnel who participated in the defense of Wake Island during December 1941.

4. One service clasp, with appropriate duty inscribed thereon, to be worn with the World War I Victory Medal.

5. "Wintered Over" clasp, worn with the Antarctica Service Medal by personnel who have remained on the Antarctic Continent during the winter months.

6. "Korea" clasp, worn with the United Nations Service Medal to denote service in the Korean area in support of U.N. action (27 June 1950 to 27 July 1954).

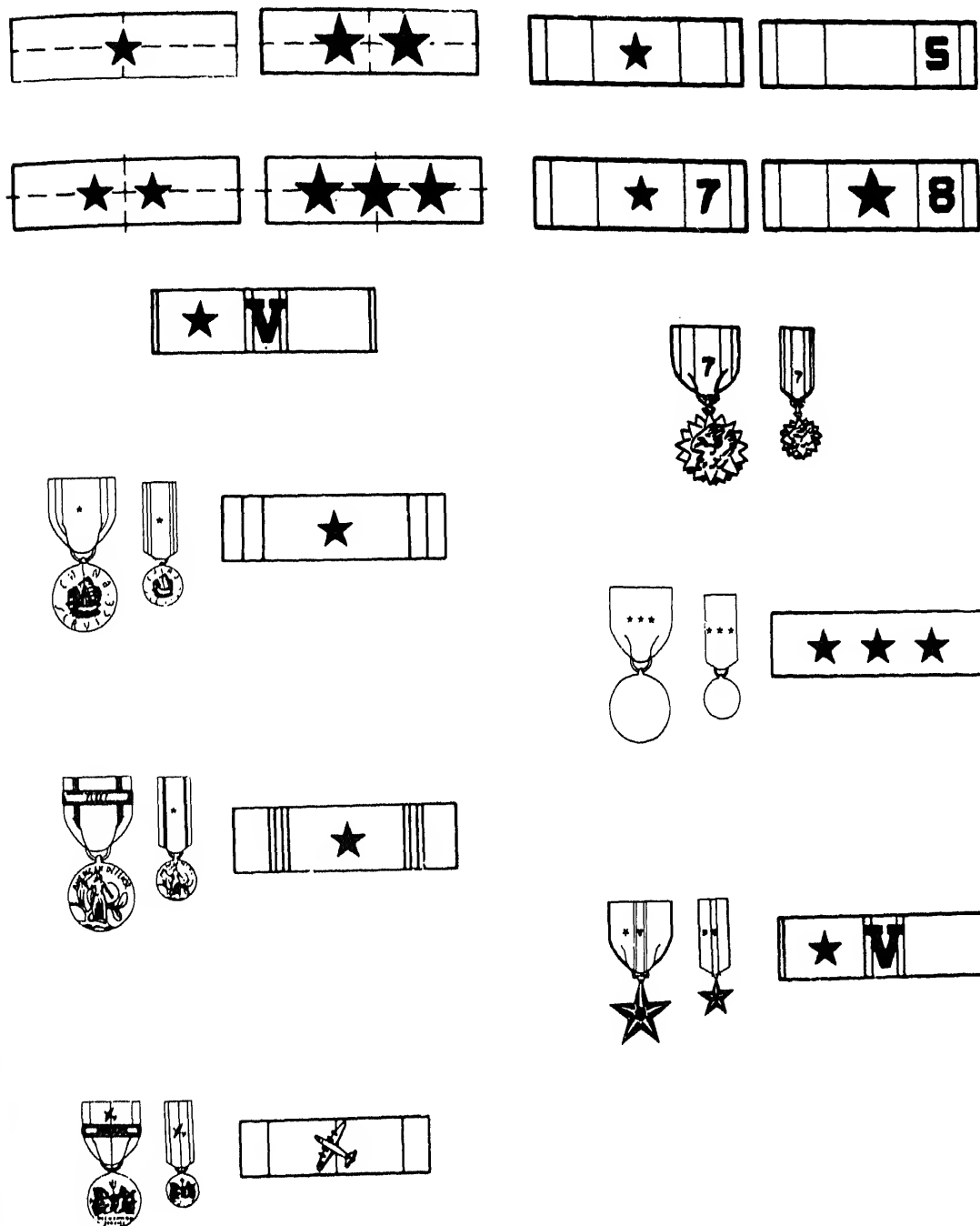


Figure A6-5.—Manner of displaying attachments on medal suspension ribbons and ribbon bars.

Miscellaneous Devices

Airlift Device: Navy personnel who served at least 90 consecutive days with units in direct support of the Berlin Airlift (26 June 1948 to 30 September 1949) may wear a gold colored miniature of a C-54 type aircraft with the Navy Occupation Service Medal.

Bronze Maltese Cross: Navy Medical Corps personnel attached to the American Expeditionary Forces in France between April 1917 and November 1918 may wear this device with the World War I Victory Medal.

Fleet Marine Force Combat Operations Insignia: Beginning with World War II, Navy personnel who have been attached to FMF units in active combat with an armed enemy are authorized to wear a bronze miniature Marine Corps emblem with the appropriate World War II area campaign medal, Korean Service Ribbon, Armed Forces Expeditionary Medal, and Vietnam Service Medal.

Hour Glass: Naval Reserve personnel may wear the Hour Glass device in lieu of a second or subsequent Armed Forces Reserve Medal for each succeeding 10 years of service. (The device is a representation of an hour glass superimposed with the Roman numeral X.)

Gold Globe: Personnel entitled to the Presidential Unit Citation awarded *USS Triton* (then SSRN 586) for circumnavigating the world underwater in 1960 may wear a gold globe centered on the PUC ribbon bar.

Antarctica Wintered Over Disk: This device, a bronze disk inscribed with an outline of the Antarctic Continent, may be worn on the suspension ribbon of the miniature Antarctica Service Medal and on the corresponding ribbon bar (a "Wintered Over" clasp is worn with the large medal).

Strike/Flight Numerals: Personnel receiving Strike/Flight awards of the Air Medal wear a bronze numeral on the medal indicating the total number of awards of this type received after 9 April 1962.

APPENDIX VII

HISTORY OF THE U.S. NAVAL ACADEMY

During the first 50 years of the United States Navy's existence, there was no organized, efficient Navywide system for training its prospective officers. Most of a midshipman's training was conducted aboard ship under the ship's chaplain. Some training, however, was provided from time to time at various schools ashore; these included a short-lived school at the Washington Navy Yard established in 1803 and a naval school established in Philadelphia in 1839 to provide an 8-month preparatory course for midshipmen's promotion examinations.

Despite growing evidence for its need, efforts to establish a naval academy were rebuffed until the Honorable George Bancroft, distinguished historian and educator, became Secretary of the Navy in President Polk's cabinet in 1845. With the establishment of a naval academy in mind, Secretary Bancroft made several adroit moves, including obtaining Fort Severn, which occupied 10 acres on a neck of land called Windmill Point at Annapolis, from the War Department. There in late 1845 he set up a naval school for midshipmen which was officially designated as the United States Naval Academy some 5 years later.

Under Commander Franklin Buchanan, its first superintendent, the new school got underway on 10 October 1845. Three of its 7-member faculty of 4 officers and 3 civilians had been outstanding instructors at the Naval School at Philadelphia. These were Lieutenant James Ward and Professors William Chauvenet and Henry H. Lockwood.

The school opened with a student body of 60, whose members were divided into a junior and senior class. They were housed in several small buildings popularly named "Apollo Row,"

"Rowdy Row," the "Gas House," "Brandywine Cottage," and the "Abbey" to reflect the principal characteristics of their residents or, in the case of Brandywine Cottage, the ship from which they came. The subjects they studied included gunnery, naval tactics, engineering, chemistry, mathematics, astronomy, French, and English.

Some of the students had come to the new school without any previous sea duty and were designated "acting midshipmen." Most students, however, had appointments as midshipmen and several years of sea duty as such. (The acting midshipmen were more comparable to today's midshipmen than the latter.)

During the first few years, many of the midshipmen—probably because of their previous sea duty, their ages (ranging up to 27 years), and their being used to unrestricted liberty when ashore—found it difficult to take their studies or the school discipline seriously. This is reflected by the following reportedly true stories.

One incident concerned the midshipmen living at the Abbey, who supposedly led exemplary lives. One night, however, the officer of the day found the Abbey deserted and upon investigation discovered a tunnel that went under the Yard wall (which was immediately adjacent) and toward Annapolis. The next day the Abbey's use as a midshipmen's residence was ended.

On another occasion, the midshipmen were reported to have hung Professor Lockwood in effigy from the Academy flagstaff one St. Patrick's Day. For this, the ringleaders were ordered to court-martial for insulting a superior officer. They claimed in defense that professors

were not superior to students since they were not officers at all. (Congress eventually remedied this situation by raising instructors to the ranks of officers.)

Another story concerning this period deals with the linguistic prowess demonstrated by one Midshipman Nelson during the annual examinations. Professor Arsene Girault, instructor in French, had patiently prepared Nelson so that he could speak something resembling that language. Nelson, knowing he could do nothing of the kind, memorized a series of phrases out of the book. During the examination, with half a dozen commodores present, the Professor speaking in French asked, "Mr. Nelson, what is your native state?"

Nelson, not understanding a word of the question, replied with one of his memorized phrases, "Thank you, I am very well."

The startled Professor glared at him and continued, "What course have you just finished?"

"I am twenty-four years of age," replied Nelson.

Just as the situation reached an impasse, Commodore Mathew C. Perry, who did not understand a word of French, arose and congratulated Girault on his success in teaching the midshipman to speak French with such fluency and accuracy.

Initially the course at the Academy took 5 years. Of these, only the first and last were spent at Annapolis, the intervening 3 years being spent at sea. In 1850-51 the school was reorganized as the U.S. Naval Academy and the course of study became 4 consecutive years. Summer practice cruises replaced the omitted sea service. Thus, today's basic 4-year curriculum first appeared at the Naval Academy over 100 years ago, long before it became general practice in American undergraduate education.

With the reorganization which made the Naval School become the Naval Academy, the school's executive officer became the commandant of midshipmen, a naval uniform for acting midshipmen was adopted and the marking scale of 4.0 was inaugurated.

The act in 1851 which approved the reorganization of the Academy also provided that, after 4 years, the holder of a certificate of graduation was entitled to a midshipmen's

warrant, and that after 2 years of sea duty he could return for an examination for lieutenant. Only Naval Academy graduates were to receive the warrants—the first step toward regulating the quality and quantity of officers in the Fleet.

The Board of Visitors was created in 1850, and in 1851 the method of appointing midshipmen in proportion to the members of the House of Representatives was established. In 1852, the proviso was added that an Academy aspirant be required to receive the recommendation of his Congressman.

In 1855, the original "fourth class" entered the Academy. Almost simultaneously the "my plebe" tradition developed, in which the new third classmen selected particular members of the incoming class over whom they kept a watchful eye. This eventually became a first classman privilege and, until the advent of the squad system in 1965, the closest relationship at the Naval Academy was between the first classmen and the plebes.

Attrition during the early years was heavy. Only 269 midshipmen of the first 1209 admitted completed the course. George Dewey entered with a class of 75; after their annual examination in June 1855 only 38 were retained. Of these, the future hero of Manila Bay ranked thirty-fifth! At graduation, however, he ranked fifth in his class of 15.

The 1850's also saw two other firsts at the Academy. Franklin Pierce became the first President of the United States to visit the Academy when he attended a naval ball there in 1856. Two years later, the first literary society at the school was formed. It honored James Lawrence, whose words "Don't give up the ship!" adorn Memorial Hall.

THE MEXICAN AND CIVIL WARS

Within 20 years after its founding, the Naval Academy went through two wars.

Only a few months after the Academy's first convocation, war was declared on Mexico. Fifty-six midshipmen who requested active duty were sent off to war at the end of the first term, and Commander Buchanan left in March 1847 to command the frigate *Germantown*.

During the Mexican War, there were noteworthy deeds by some of the midshipmen. After other methods failed, Foxhall Parker landed a 32-pound gun from the *Potomac* by running a small boat ashore, cutting out the bottom, and leaving the gun there. Midshipman Young, serving as a mounted messenger between the Army and the Navy, inadvertently led a charge when his cavalry horse answered a bugle call. The first monument to be erected in the Yard honors four midshipmen who were killed in the Mexican War: Henry A. Clemson, John R. Hynson, J. V. Pillsbury, and T. B. Shubrick. Called the Mexican Monument, it was put up in 1848 by the midshipmen at the Academy.

On the eve of the Civil War two more important monuments were erected at the Academy, which, like the Mexican Monument, still stand. These were the Tripoli Monument and the Herndon Monument.

The Tripoli Monument commemorates the intrepidity of six young officers of the infant U.S. Navy who were killed in the war with the Barbary pirates: James Decatur (brother of Stephen Decatur), James Caldwell, John Dorsey, Richard Somers, Joseph Israel, and Henry Wadsworth. The Tripoli Monument is actually the oldest one in the Yard. It was made in Italy in 1806 and located first at the Washington Navy Yard and then on the Capitol grounds before it was brought to Annapolis in 1860 and set up at its present site.

The Herndon Monument, also erected in 1860, commemorates the captain of a ship which foundered off Cape Hatteras in 1857, Commander William L. Herndon. When he had done all he could to save his men and his ship, Commander Herndon donned his full dress uniform, mounted the bridge, and stood at attention with his hat raised as the ship went down. Lieutenant (later Commander) Mathew Fontaine Maury said of him at the time "Forgetful of self, mindful of others . . . he added new glory to the annals of the sea."

The coming of the Civil War brought the young school trying years in 1860 and 1861. As states seceded from the Union, the tension mounted. Finally, one day in April 1861 all hands were ordered to muster aboard the

Constitution, the school ship. Lieutenant Christopher R. P. Rogers, commandant of midshipmen, addressed the group and ordered all those who desired to resign to fall out of ranks. Many did, and amid sad farewells went off to the Confederacy.

Officers at the Academy also went their respective ways, including the brothers William and Foxhall Parker. William had argued they should remain with the Union because of education and Navy ties; Parker argued for the Confederacy because of family and state connections. They separated after their discussion, but each had been so persuasive that, unknown to each other, William resigned and Parker remained with the Union.

Because of the urgent need for junior officers in the rapidly expanding Union Navy, the first, second, and third class midshipmen who remained were sent off to war. The fourth class, aboard the *Constitution*, shortly sailed for Newport, R.I., which became the home of the Academy for the duration of the War.

Many Academy men performed noteworthy deeds during the War. One was Lieutenant Cushing, who placed a torpedo directly under the side of the Confederate ram *Albemarle* and pulled the firing lanyard himself, escaping by diving into the water and swimming to safety. He, along with Midshipman Benjamin Porter, led the naval battalion into action at Fort Fisher. In the same engagement, Robley "Fighting Bob" Evans, wounded several times, was the only officer who reached the parapet of the fort.

POST-CIVIL WAR PERIOD

The Naval Academy faced several serious problems during the first 20 years after the Civil War. Fortunately, because of some outstanding superintendents, it was able to overcome them.

When the Academy returned to Annapolis in 1865, the grounds were in poor condition, there were academic disputes as to what should be included in the training and the difficulty of the courses, and the internal organization was in makeshift condition. Under Admiral David Porter, who became superintendent in 1865, these and other problems were solved.

Porter made Lieutenant Commander Stephen Luce, commandant of midshipmen, and introduced a new executive organization. In it, the battalion comprised four divisions, each containing six 20-man guncrews. The ranking cadet midshipman was the cadet lieutenant commander, followed in order by cadet lieutenant, ensign, and first and second gun captains. Midshipman Nicholson S. Kane, number one man in his class, became the first cadet lieutenant commander in 1866. Porter inspired in the midshipmen pride in themselves and in their school. He placed them solely on their honor—one of the fundamental principles of the Academy today—and trusted them implicitly, with excellent results.

Probably the greatest problem facing the Academy during this period was the effect of naval stagnation that set in following the war. The backlog of junior officers in the U.S. Fleet became so great that in 1873 the Academy course was lengthened to 6 years, the last 2 at sea; and no appointment was to be granted unless a man graduated from the Academy. Under a law passed in 1882, no commissions were to be given in the lower grades until vacancies existed, students at the Academy being designated as naval cadets rather than midshipmen. Consequently, midshipmen saw no future in the Navy because a period of 5 to 8 years as "passed" midshipmen awaited them upon graduation.

Hazing was another prominent problem of the period. Parents, friends, and Congressmen complained of the rough handling of some of the members of the incoming class of 1871. When the victimized plebes became third classmen the next year, however, they treated the incoming class even more roughly. Once, while a father's charges concerning the treatment his son had received from "young brutes in government uniform" were under lengthy investigation, complaints arose against his son because, in the words of the father, he was "having a little harmless fun with the newcomers."

Eventually hazing became less of a problem but not before Congress passed (and 10 years later repealed) the Hazing Law of 1871, which prescribed a court-martial for every hazing offense.

There were achievements as well as setbacks and problems during the post-Civil War period. In 1873, when Commodore Worden was superintendent, the Academy's battalion made its first public appearance when it marched at President Grant's second inauguration in Washington. It was Commodore Worden who started the practice of "star" men (3.4 or above) taking their places in front of the battalion at graduation. In the later 1870's, Albert Michelson, a graduate of the class of 1873, performed his world-famous experimental measurement of the velocity of light while serving as an instructor in the Department of Physics and Chemistry at the Academy. (Michelson continued his brilliant scientific work after leaving the Navy, and in 1907 he became the first American scientist to receive a Nobel Prize.) In 1879 the Paris Exposition recognized the excellence of the technical education provided at the Academy by awarding it a certificate for "The Best System of Education in the United States."

The situation for the students began to improve in 1884 when a new law restored them to officer status; and further, the first class members were commissioned full ensigns immediately upon graduation.

The class ring—one of an Academy graduate's most prized possessions—made its appearance during this period, with the class of 1869 being the first to wear it. (The class ring shows the Naval Academy seal on one side and the class seal on the other, with the design of the rings differing in detail between each class.)

Organized athletics were introduced to the Academy during the post-Civil War period. Class baseball teams were formed in 1867, and that year the first of a series of annual Thanksgiving athletic carnivals was held at the Academy. The program included track and field competition, baseball, rowing, and gymnastics. In 1870, the Academy began competing against outside crews in rowing. Football was being played at the Academy by 1880; and in 1882 the school's football team played its first outside game, defeating the Clifton Football Club of Baltimore 8-0. Eight years later came the first football game between Annapolis and West Point, with the Navy winning 24-0.

The Naval Academy Athletic Association was founded in 1892, and in 1894 Walter B. Izard of the Academy set a new world record for the 50-yard swim.

Although the war with Spain in 1898 lasted but a few months, it brought a sudden change to the lives of those attending the Academy. The first classmen were graduated 2 months ahead of schedule and ordered to the Fleet on 2 April. By the end of July, practically the entire battalion was in the war. Meanwhile, after their defeat at Santiago on 3 July, Admiral Cervera and other Spanish naval officers were quartered at the Academy, where they were treated more like guests than prisoners of war.

FROM 1898 TO WORLD WAR I

An extensive building program, under which nearly all the existing buildings at the Academy were eventually replaced with the French Renaissance style buildings which stand today, was initiated following the war with Spain. The first steps toward this program had begun in 1895 when the Board of Visitors condemned the Academy's buildings as a menace to health and safety. Following this, Colonel Robert Means Thompson, class of 1868 and a member of the Board, engaged Ernest Flagg, a noted architect, to draw a plan not only for new buildings but also for a completely new arrangement of the Yard. Congress approved and in 1899 implementation of the architect's plan started.

By this time, the Yard had been expanded greatly, from its original 10 acres, through various acquisitions. These included the purchase of the mansion and gardens of the Governor of Maryland in 1866, of 10 acres from St. John's College a year later, and in 1868 of 65 acres which are now occupied by the Naval Academy cemetery and the naval hospital. More land was needed, however, and most of this was provided by dredging mud out of Chesapeake Bay.

During the early 1900's, a number of buildings were completed under the new plan: Dahlgren Hall and Macdonough Hall in 1903; Isherwood Hall and the Officer's Club in 1905;

Bancroft Hall in 1906; and the Administration Building, Mahan Hall, Sampson Hall, and Maury Hall in 1907.

Bancroft Hall was built as the dormitory for all midshipmen and is the main building at the Academy. Six wings have been added to the building since 1906 to keep pace with brigade expansion. Within Bancroft Hall is Memorial Hall which pays tribute to American naval heroes. Its most stirring exhibit is the faded blue flag on which is sewn in uneven white letters the undying words of Captain James Lawrence—"Don't give up the ship." The battle flag which Oliver Hazard Perry flew in his victory at the Battle of Lake Erie, its words confront the midshipman when he first takes his oath of office as a midshipman and finally when he is commissioned an ensign.

The Naval Academy Chapel, with its great dome that dominates the Yard, was completed in 1908. One of its most striking features is its stained-glass windows. Of these, the three main windows are memorials to Admirals Porter and Farragut, and Rear Admiral Sampson. The two flanking windows portray the mission of the chapel. One shows Sir Galahad with his sheathed sword before him; the other portrays a newly commissioned ensign being shown by Christ the beacon he must follow as an officer. The bronze doors of the chapel, another of its noteworthy features, were the gifts of Colonel Robert Means Thompson.

As originally constructed, the chapel was laid out in the form of a Greek cross, but in 1939 an extension was added to increase its capacity which changed the plan to that of a Christian cross. Another notable feature of the chapel, the Votive Ship which hangs from a chain in the arch of the nave, was presented in 1941 by alumni who had served in the Construction Corps, which no longer exists as a separate corps. (The idea of exhibiting a ship model in a church goes back to ancient days and symbolizes the dedication of seafaring men to their God.)

Beneath the chapel is the crypt containing the sarcophagus of John Paul Jones. Completed in 1913, the sarcophagus is surrounded by eight columns of Pyrenean marble; inlaid in a circle

in the marble floor around it are the names of the seven ships which Jones commanded or captured during the Revolutionary War: *Serapis*, *Alliance*, *Providence*, *Bonhomme Richard*, *Alfred*, *Ariel*, and *Ranger*.

Until brought to Annapolis in 1905, Jones' remains had been in France since his death over a century before. The reinterment in 1906 was one of the most impressive ceremonies in the Academy's history. For the occasion, a large crowd filled Dahlgren Hall to honor the memory of the "Father of the American Navy" and to hear President Theodore Roosevelt, who closed the day with these ringing words—"The man who never surrenders never has to make excuses!"

Among the midshipmen attending the Academy during this period of building and expanding its facilities were several who would later lead the Navy during World War II and its period of greatest expansion: Ernest F. King, William F. Halsey, Chester Nimitz, Raymond Spruance, Harold R. Stark, Richmond K. Turner, and Marc A. Mitscher, to name a few.

An important change at the Academy at this time concerned the summer practice cruises. Ever since 1851 these cruises had normally been in practice ships assigned to the Academy. These included such famous sailing ships as the *Constitution* and the *Constellation*, and the last square rigger built (1900) for the U.S. Navy, the *Chesapeake*. In 1904, however, part of the midshipmen embarked in the coast squadron of the North Atlantic Fleet. This procedure was repeated yearly until 1912 when the present system of summer practice cruises being only in ships of the Fleet was begun.

The length of the curriculum was also changed in 1912. Since 1873 it had been 6 years in length, with the last 2 years being spent at sea. The requirement for the last 2 years at sea was dropped in 1912 and the curriculum reverted to 4 years.

The designation of those attending the Academy as midshipmen, the writing of the Navy's battle song, and the adoption of the Academy's coat of arms also occurred around the turn of the century.

An act of Congress in 1902 restored to the Academy's students the nautical title "midshipmen" by which they had been designated from 1862 to 1870, and by which they are designated today. (From 1845 to 1862 they had been designated "acting midshipmen on probation," from 1870 to 1882, "cadet midshipmen," and from 1882 to 1902, "naval cadets.")

The coat of arms of the Naval Academy, designed by Park Benjamin, class of 1868, was officially adopted in 1899. The trident is the ancient symbol of seapower, the motto "Ex Scientia Tridens" represents the purpose of the Academy, the book depicts scholastic ideas, and the shield exhibits a Roman galley coming bows on into action. "Anchors Aweigh," the Navy battle song, was composed in 1907 at the Academy. It was the result of a joint effort by Lieutenant Charles A. Zimmerman, the Academy Bandmaster, and Midshipman Alfred H. Miles, a member of the first class choir that year. The midshipmen first sang it at the Army-Navy football game in 1907 as the Navy won its second successive victory over West Point.

An example of the close attention the Academy gave during this period to the task of developing midshipmen into gentlemen with the strictest sense of dignity and honor may be seen in the dancing regulations formulated by the Department of Discipline (forerunner of today's Executive Department) in 1913:

1. None of the modern dances will be performed under any circumstances.
2. Midshipmen must keep their left arm straight during all dances.
3. A space of 3 inches must be kept between the dancing couple.
4. Midshipmen must not take their partner's arm under any circumstances.
5. Midshipmen will not leave the ballroom floor until the dance has been completed and all officers and their guests have left.

The Department of Discipline also strictly regulated smoking. For many years, midshipmen were not permitted to smoke in their rooms. Later, first classmen were given the privilege of

keeping their smoking articles in Recreation Hall; there they could gather after dinner to smoke and talk. This custom gave Recreation Hall its more popular name "Smoke Hall."

WORLD WARS I AND II

When the United States entered World War I in April 1917, the Navy accelerated the course of study at the Academy. The class of 1917 graduated 3 months early and the class of 1918 graduated 1 year early. The 3-year course remained in effect until the end of the War, when the 4-year plan was resumed.

As the expanding wartime Navy required more officers than the Academy could provide, a 3-month course to train specialized Reserve ensigns was established. The program, which was supervised by Rear Admiral Eberle, then superintendent of the Academy, graduated four classes of Reserve officers.

Following World War I there was some liberalizing of the "rates" and privileges of the midshipmen, resulting from the efforts of Rear Admiral Henry B. Wilson, superintendent from 1921-1925. Midshipmen were granted the privilege of smoking in their rooms in Bancroft Hall and were given the first Christmas leave in the history of the Academy. Rear Admiral Wilson was also noted for his fair and speedy justice.

One of the most significant and colorful events in the life of a midshipman—the Ring Dance—had its origins in the 1920's. For some time it had been the custom of first classmen to throw second classmen into Dewey Basin as soon as the latter had become eligible to wear their class rings, that is, had passed their final exams for the year. In 1924 this custom resulted in the tragic drowning of a second classman, and so it was replaced by the Ring Dance.

The Ring Dance is distinguished by several special features. One of these is the Ring Dance Dinner, the only occasion when midshipmen may entertain their ladies at dinner in the messhall. The most important feature, however, is the presentation of the rings. At the scene of the dance there is a huge golden ring modeled

after the class ring. The ring, which stands on a carpeted dais, is surmounted by a glowing globe that simulates the jewel of the ring. As each couple approaches the replica of the ring, the lady dips the midshipman's ring, suspended from a ribbon, into a compass binnacle filled with water from the Severn River and the seven seas, symbolic of his present and future home. The couple then pass through the replica where she places the ring on his finger. It is a moment charged with romance, especially if he presents her with a miniature class ring, regarded as equivalent to an engagement ring. They kiss and seal the ceremony.

The stirring song "Navy Blue and Gold" was officially adopted as the Naval Academy's song in 1927. Composed by the former Academy Chapel organist and choir master, Joseph W. Crosley, it had been first sung at the spring concert of the Glee Club in 1926.

In 1926 there also occurred one of the most exciting Army-Navy football games in all this long and hard-fought series. At Soldier's Field, Chicago, 110,000 persons—the largest crowd ever to watch a football game—saw Navy come from behind to tie Army 21-21. Midshipman Tom Hamilton (now Rear Admiral Thomas J. Hamilton, Ret.) was the Navy's hero as he kicked the tying point that gave Navy an undefeated season and a claim to the national title.

It was during the 1920's that the type of uniform midshipmen now wear was adopted. The uniform previously worn resembled that of the West Point cadet.

Throughout the 1920's and 1930's the Academy's academic standards were continually being raised and new courses added. For example, the Department of Foreign Languages by the time of World War II offered the midshipman his choice of any one of the following seven languages: French, Spanish, German, Italian, Russian, Portuguese, or Japanese. Today, all of these except Japanese are still available.

In 1930, six midshipmen were awarded Rhodes Scholarships—a record number. And in that year, the Association of American Universities accredited the Academy as a

member. Following this, Congress passed a law in 1933 authorizing the Academy to confer Bachelor of Science Degrees on all graduates, beginning with the class of 1931. Subsequently, in 1939 Congress authorized the award of the B.S. degree to all living graduates.

Another development in the 1930's was the formation of the Academy Yacht Squadron. This had its beginning in 1936 when Mr. S. V. Makaroff presented the Academy with the mahogany-hulled staysail ketch *Vamarie*. Built in Germany, the *Vamarie* had in 4 years of ocean racing won cup after cup under Mr. Makaroff. In 1938, a crew of midshipmen under the command of Captain John F. Shafroth manned her in a race to Bermuda, the first open seaway race participated in by midshipmen representing the Academy. Shortly thereafter the *Highland Light*—a boat that had been rated in the highest racing classification for wooden ships by Lloyds of London—and the powerful schooner *Freedom* were acquired. The latter was a gift of Mr. Sterling Morton.

The Seamanship Department (now Naval Science Department) quickly realized the value of this extracurricular activity from a professional training standpoint. The first 3 of 12 yawls—the *Alert*, *Intrepid*, and *Resolute*—were added to the new squadron in 1939. Three more—the *Restless*, *Active*, and *Frolic*—were added in 1942; and the remaining 6 were acquired in 1943. The Yacht Squadron participates in nearly all races held in the Chesapeake Bay area and has earned a fine reputation.

After the entry of the United States into World War II, the course of study at the Academy was accelerated in a manner similar to that in World War I. The class of 1942 was graduated 6 months early in December 1941, and the class of 1943 joined them in the Fleet the following June. Throughout the war, the three classes (plebes, youngsters, and finishers) pursued a program which placed greater emphasis on professional and technological courses.

The brilliant role played by Academy graduates in all theaters in World War II forms an indelible page in the Nation's and Navy's history.

The ending of World War II did cause a minor mishap to one noted landmark in the Academy Yard—the Japanese Bell. In 1845 Commodore Matthew C. Perry had been given this bell by the Regent of Napha, Ryukyu Islands, while on his expedition to Japan. After his death, his widow had presented it to the Naval Academy in 1859 according to his wish. Traditionally, the bell is rung only after a victory over Army in football. An exception to this was made on VJ-Day in 1945, and the bell was struck with such enthusiasm that it cracked.

Today these traditions and many others remain at the Naval Academy. New plebes still come through the Academy gates in July and do not leave the Yard again until the end of August. White-capped midshipmen in dress blue and brass buttons still pass in review on Worden Field, and drum rolls still thunder in Bancroft Hall courtyard during meal formations.

Academy graduates continue to distinguish themselves in military roles as well as in public life. President Jimmy Carter (class of 1947) was a successful businessman and a state governor, and now is the first Academy graduate to hold the highest office in the land.

Along with the continuing traditions at the Naval Academy, exciting changes, academically and physically, reflect the trends and needs of the times. Midshipmen no longer march to classes, just as they no longer are locked into the same inflexible academic pattern. New emphasis on broadening their academic opportunity has expanded the old basic core curriculum into majors ranging from aerospace engineering, to literature, to oceanography. Whereas little more than a decade ago, all midshipmen took the same 40 courses, today's midshipmen have the opportunity to select from more than 500 courses, including political science, languages, and computer science.

The professional changes at Annapolis are also important. Along with the emphasis on broadening the academic curriculum, more intense officer training is provided at the Academy. Upperclassmen have more of the responsibility for plebe training and leadership of the entire 4300-man Brigade of Midshipmen.

New buildings—modern, yet in harmony with the classic structures from the past—now

line the Severn River. The twin towers of the science and mathematics buildings, Michelson and Chauvenet Halls, have been in use for more than 8 years. The 750,000-volume Nimitz Library was dedicated in the fall of 1973, and contains complete audio-visual and closed-circuit television facilities as well. Rickover Hall, the Academy's newly completed engineering studies complex, is one of the most extensive laboratory facilities in the Nation.

On the waterfront rises the Robert Crown Sailing Center, dedicated in April 1974. Built from privately donated funds, the Center houses the Intercollegiate Sailing Hall of Fame and provides facilities for the Academy's program of varsity and intramural sailing training. Venerable Dahlgren Hall, for years an armory and drill hall, has been converted with private donations into the Midshipman Activity Center with a hockey-size skating rink, snack bar, and other recreational facilities.

The improved facilities, the increased versatility of the academic program and

extracurricular activities, along with a more sophisticated professional training program to meet the more complex needs of today's nuclear Navy, provide midshipmen with one of the most balanced educations available.

Beginning with the class of 1980, this education is offered to women as well as men at Annapolis. Women midshipmen, under a new law passed by Congress, were admitted to the Naval Academy for the first time with the plebe class reporting in July 1976.

Instead of the seven founding professors, the Academy faculty now numbers more than 550. Half of the faculty are naval officers who serve on a rotating basis, bringing fresh thinking from the fleet; and half are civilians, ensuring continuity and input from the academic community.

Where some 50 young men had crowded into the old barracks of 10-acre Fort Severn in 1845 to open the new national Naval School, more than 4300 midshipmen now walk the 300 acres that are the Naval Academy today.

INDEX

A

- Administration of naval aviation, 391
- Administrative organization, 283-300
- Adverse reports, 562
- Aerospace medicine and space research, 392-395
 - crew systems department, 394
 - naval aerospace medical research laboratory, 395
- Aiguillettes and mourning badges, 103
- Airborne weapons, 408-418
- Airborne weapons, development of, 400
- Aircraft bombs, 415-418
- Aircraft mines, 418
- Aircraft model designations, 386-392
- Aircraft nomenclature and model designations, 385
- Aircraft rockets, 412-414
- Air Forces program, 281
- Air-launched torpedoes, 418
- Air strikes, 424
- Air-to-air Missiles (AIMs), 408-411
- Air-to-Ground Missiles (AGMs), 411
- Alphabet and numeral flags, 568
- Ammunition ships, 369-374
- Amphibious support, 422
- Amphibious warfare, 462-474
 - historical background, 463
 - amphibious operations in World War II, 463
 - development between world wars, 463
 - landings in World War I, 463
 - phases of an amphibious operation, 464-472
 - assault, 468
 - logistics during the attack, 472
- Amphibious warfare—Continued
 - phases of an amphibious operation—Continued
 - movement to the objective area, 467
 - planning, 464-466
 - pre-assault operations, 467
 - rehearsals, 466
 - supporting operations, 467
 - ships, 464
 - underwater demolition teams and Navy SEAL teams, 472-474
 - SEAL teams, 474
 - UDT operations, 472-474
- Amphibious warfare ships, 357-365
- Antennas, 336-338
- Antiair warfare, 427-432
 - Antiship Missile Defense (ASMD), 432
 - today, 429-432
- Antiair Warfare (AAW) missiles, 402-405
- Antiship Warfare Missiles (cruise), 406-408
- Antisubmarine warfare, 454-461
 - basic elements of ASW forces, 456-459
 - airborne electronic devices, 458-459
 - ASW aircraft, 456-457
 - ASW submarines, 458
 - surface units, 456
 - shipboard ASW organization, 460-461
 - sound navigation and ranging, 460
- AOC Program, 54
- ASROC, 405
- Assistance programs, officers, 75
- Augmentation Program, 51
- Ausburne, Charles L., 39
- Authority to classify, downgrade, and declassify, 509-510
- Auxiliary ships, 369-379

Aviation, naval, 380-395
Awards, 594-604
 definitions, 594
 manner of wearing awards, 600-604
 attachments, 602-604
 large medals, 600
 miniature medals, 600
 service ribbons, 600-602
 order of precedence, 594-600

B

Boat etiquette, 130
Boats and survival equipment, 339-341
Bridge assembly, 332-336
Bulkheads, 310

C

Capodanno, Vincent R., 45
Career Reservist, 273
Carrier striking forces, 419-422
Cassin incident, 39
Censorship, personal, 514
Ceremonies and honors, 570-593
Civil War, 28
Classification categories, 507-509
 Confidential, 508
 doctrinal material, 509
 For Official Use Only, 508
 Restricted Data, 508
 Secret, 508
 Top Secret, 508
Classification guides, 510
Classification markings, 510-511
Coast Guard uniforms, 103
Combatant craft, 366-369
Combatant ships, 342-366
Commerce and oceanography, 15-17
Commissioning, 323
Communicating, methods of, 496-501
 electrical, 496-499
 pyrotechnics, 501
 sound, 501
 visual, 499
Communication publications, 503
Communication spaces, 502
Compartmentation, 312

Components and supporting elements of the Navy, 217-247
 Chaplain Corps, 229-230
 Civil Engineer Corps, 217-223
 seabees, 218-223
 Judge Advocate General's Corps, 230-233
 formation of the Judge Advocate General's Corps, 231-233
 formation of the Office of the Judge Advocate General, 230
 functions of the JAG Corps, 233
 Navy Medical Department, 225-229
 Medical Department today, 228
 organization of the Medical Department, 225-228
 Supply Corps, 224
 United States Coast Guard, 235-244
 aids to navigation, 239
 functions of, 236-240
 history and accomplishments of, 240-244
 icebreaking and ice patrol, 237
 law enforcement, 236
 marine environmental protection, 240
 merchant marine training, 238
 ocean stations, 238
 organization and administration of, 240
 port security, 237
 search and rescue, 237
 United States Merchant Marine, 245-247
 peacetime organization, 247
 training, 246
 women in the Navy, 233-235
 enlisted, 235
 officers, 234
Correspondence courses, officers, 68
Courts-martial, 146-154
 effect of censure, 153
 general court martial, 150
 naval personnel and civil court actions, 152
 reviews of courts-martial, 151
 special court martial, 148-150
 summary court martial, 147
 vacation of suspension, 152
Cryptographic security, 516
Cuban quarantine, 8
Current Navy aircraft, 387
Customs and naval terms, 82-96

D

Dahlgren, John A., 32
 Data desired by the enemy, 505
 Decatur, Stephen, 24-26
 Decks, 311
 Defense Activity for Nontraditional Education
 Support (DANTES), 71
 Defense communications system, 494
 autodin, 495
 autovon, 495
 Defense Intelligence Agency, 528-529
 Department of the Navy, 203-216
 composition of, 207-216
 executive administration, 207-212
 operating forces of the Navy, 212-213
 shore activities, 213-216
 naval bases, 216
 naval districts, 216
 organization of the Department of Defense,
 203-207
 defense agencies, 206
 Joint Chiefs of Staff, 205
 military departments, 206
 Secretary of Defense, 205
 unified and specified commands, 206
 Deployment, 13-15
 Development between world wars, 463
 Development, research and, 530-553
 Devices, line and corps, 98-103
 Dewey, George, 35
 Dickey, Douglas E., 45
 Disciplinary action for security violations, 513
 Discipline and the Uniform Code of Military
 Justice, 133-193
 dealing with breaches of, 141-155
 apprehension, arrest, restriction, and
 confinement, 141
 courts-martial, 146-154
 disciplinary separations from the
 service, 154
 initiating and preferring charges, 142
 nonjudicial punishment, 143-146
 fact-finding bodies, 155
 effect of proceedings, 156
 securing and maintaining, 135-141
 continuity of discipline, 137
 importance of petty officers, 139-140
 know your men, 138
 praise and blame, 136

Discipline and the Uniform Code of Military
 Justice—Continued
 securing and maintaining—Continued
 precept and example, 138
 principles of effective discipline, 140
 role of the Uniform Code of Military
 Justice, 141
 Uniform Code of Military Justice,
 156-193
 article 2, 157
 article 3, 158
 article 7, 159
 article 8, 159
 article 9, 159
 article 10, 160
 article 11, 160
 article 12, 161
 article 13, 161
 article 14, 161
 article 15, 161-164
 article 25, 165
 article 27, 165
 article 31, 166
 article 37, 167
 article 38, 168
 article 55, 169
 article 77, 169
 article 78, 169
 article 79, 169
 article 80, 170
 article 81, 170
 article 82, 171
 article 83, 171
 article 84, 171
 article 85, 172
 article 86, 173
 article 87, 173
 article 88, 173
 article 89, 174
 article 90, 174
 article 91, 174
 article 92, 175
 article 93, 175
 article 94, 175
 article 95, 176
 article 96, 177
 article 97, 177
 article 98, 177
 article 99, 177
 article 100, 178
 article 101, 178

Discipline and the Uniform Code of Military
Justice—Continued
Uniform Code of Military Justice—
Continued

article 102, 178
article 103, 179
article 104, 179
article 105, 180
article 106, 180
article 107, 181
article 108, 181
article 109, 181
article 110, 182
article 111, 182
article 112, 182
article 113, 183
article 114, 183
article 115, 183
article 116, 184
article 117, 184
article 118, 184
article 119, 185
article 120, 186
article 121, 186
article 122, 187
article 123, 187
article 123a, 188
article 124, 188
article 125, 189
article 126, 189
article 127, 189
article 128, 190
article 129, 190
article 130, 191
article 131, 191
article 132, 191
article 133, 192
article 134, 192
article 137, 157
article 138, 193
article 139, 193

value of, 133-135

Disclosure of classified material, 512-514

Division officers, 297-300

Downgrading and declassification, automatic,
511-512

E

Enemy espionage, 505-507

Enemy success, proof of, 506

Enlisted uniforms and insignia, 107-114

Erecting the ship, 317-319

Explosive Ordnance Disposal (EOD), 453

External Equipment of Ships, 325-341

antennas, 336-338

boats and survival equipment, 339-341
lifesaving and survival equipment,
340-341

bridge assembly, 332-336

signal bridge, 333-336

ground tackle, 331

hull, 325

after part of the hull, 326

amidships, 326

fore part of the hull, 326

masts, staffs, and stacks, 336

ordnance equipment, 326-331

guided missile launching systems,
329-331

guns, 326-329

torpedo tubes, 331

F

Fact finding bodies, 155

Farragut, David G., 28

Fast carrier task force, development of, 420

Fire support, 425

Fitness reports, officer, 559-563

Fitting out, 323

Fixed-wing aircraft, nomenclature, 385

Fleet aviation, 391

Force, striking, 419-426

Framing, 309

Functional organization, 300-305

G

Gilmore, Howard W., 42

Ground tackle, 331

Guided missile launching systems, 329-331

Gun salutes, 573-587

Guns, 326-329, 400-402

H

Halsey, William Frederick, Jr., 40-42

Hand salutes and other marks of respect,
572

Heads of department, 288-297
 Historical background, 463
 Honors and ceremonies, 570-593
 gun salutes, 573-587
 hand salutes and other marks of respect, 572
 honors to National Anthems and National Ensigns, 570-572
 special ceremonies, anniversaries, and solemnities, 587-593
 Hull, 325
 Hull, Isaac, 25
 Humphreys, Joshua, 21
 Hutchins, Johnnie, 42

I

Insignia and uniforms, 97-116
 Intelligence community, 527-259
 Intelligence, meaning of, 521
 Intelligence, naval, 521-529
 Intelligence process, components of, 522
 Iwo Jima flag-raising, 43

J

Jones, John Paul, 18-21
 Judge Advocate General's Corps, 230-233

K

Keel, 308
 Korea, logistics, 478
 Korea, Marine Corps, 260
 Korea to Vietnam, Marine Corps, 261-263
 Korean campaign, 383
 Korean War, 43

L

Landing craft, 367
 Landings in World War I, 463
 Launching, 319

Leadership, 194-202

leadership and the Code of Conduct, 200-202
 qualities of, 195-200
 ability to organize and make decisions, 198
 courage, 197
 devotion to duty, 196
 initiative and ingenuity, 197
 loyalty, 195
 personal example, 198
 professional knowledge, 196
 self-confidence, 197

Living quarters and messes, 305

Logistics, 475-491

Korea, 478
 military sealift command, 482
 naval support activity, Saigon, 480-481
 planning, 488-491
 Department of the Navy level, 490
 DOD level, 489
 field level, 490-491
 national level, 488
 seventh fleet logistics, 482-484
 structure of naval logistics, 484-488
 determination of requirements, 484-486
 distribution, 487
 procurement, 487
 Vietnam, 479
 naval support activity, Da Nang, 479
 World War I, 476
 World War II, 477

Logistics during the attack, 472

Logistic support, 421

Logs, 304

Luce, Stephen B., 33

M

Macdonough, Thomas, 27
 Mahan, Alfred T., 34
 Marine Corps Aviation, 391
 Marine Corps, United States, 248-271
 Masts, staffs, and stacks, 336
 Maury, Matthew Fontaine, 31
 Medals and other insignia, 114-116
 Mexican and Civil Wars, 606

Military courtesy, 117-132
 naval etiquette, 122-131
 salutes, 117-122
 shipboard relations between officers
 and men, 131

Military sealift command, 482

Mine countermeasures (MCMs), 450

Mine warfare, 446-453

Mine warfare ships and helicopters, 365

Morse code, semaphore, and alphabet flags,
 566-569

Mourning badges and aiguillettes, 103

Movement to the objective area, 467

N

National Anthems and National Ensigns,
 570-572

Naval Academy, 47-50

Naval Academy midshipmen uniforms, 104

Naval aviation, 380-395

 aerospace medicine and space research,
 392-395

 crew systems department, 394

 naval aerospace medical research
 laboratory, 395

 aircraft model designations, 386-392

 administration of Naval aviation, 391

 current Navy aircraft, 387

 fleet aviation, 391

 Marine Corps aviation, 391

 naval air training command, 391

 aircraft nomenclature and model
 designations, 385

 fixed-wing aircraft nomenclature, 385

 rotary-wing aircraft nomenclature,
 385

 Korean campaign, 383

 Post-Korea developments, 383-385

 World War II, 381-383

Naval etiquette, 122-131

 boat etiquette, 130

 forms of address, 125-128

 general relations between juniors and
 seniors, 123-125

 quarterdeck etiquette, 128

 social calls, 130

 wardroom etiquette, 128-130

Naval intelligence, 521-529

 components of the intelligence process,
 522

 intelligence community, 527-529

 Defense Intelligence agency, 528-529

 meaning of intelligence, 521

 origin and development, 522-526

 World War I, 523

 World War II, 524-526

 today, 526

 NIC field activities, 526

Naval officers career, 46-81

 assignment and rotation patterns, 58-64

 aviation pattern, 61-63

 line officer patterns, 59-61

 staff corps pattern, 63

 women officers' pattern, 64

 benefits, 73-80

 assistance programs, 75

 commissary and exchange privileges,
 74

 dependent schooling, 74

 medical and dental care, 73

 officers' mess, 75

 recreation and sports programs, 76

 retirement, 76-79

 survivors' benefits, 79

 distribution and promotion opportunities,
 54-58

 promotion opportunities for women,
 57

 education, 64-71

 correspondence courses, 68

 formal education, 66-68

 in-service training, 64-66

 Navy Campus For Achievement
 (NCFA), 68-71

 Navy way of life, 80

 officer procurement, 47-54

 NROTC, 50, 53

 Regular Navy, 47-52

 Reserve, 52

 pay and allowances, 71-73

 allowances, 72

 basic, special, and incentive pay, 72

Naval Research Laboratory, 538-541

Naval Research, office of, 537

- Naval Reserve, 272-282
 - administration, 274-277
 - Assistant Chief of Staff for Air Programs, 275
 - Assistant Chief of Staff for Surface Programs, 274
 - Chief of, 274
 - Chief of Naval Personnel, 275
 - Chiefs of Naval Education and Training (CNET), 275
 - Commander Naval Air Reserve Force, 274
 - Individual Ready Reserve (IRR), 276
 - Naval Reserve Readiness Commands, 275
 - Ready Reserve, 275
 - Reserve Unit Commanders and Commanding Officers, 275
 - Retired Reserve, 277
 - Selective Reserve, 276
 - Standby Reserve, 276
 - career reservist, 273
 - military obligations for reservists, 273
 - nature of reserve training, 277-278
 - active duty for training, 277
 - programs, 278-282
 - Air Forces program, 281
 - Special and General Support Program, 281-282
 - surface programs, 280
 - unit classifications, 279
 - reserve manpower categories, 273
 - retirement point credit, 278
 - total force policy, 272
- Naval support activity, Da Nang, 479
- Naval support activity, Saigon, 480-481
- Naval telecommunications, 492-503
 - communication publications, 503
 - Defense Communications System, 494-496
 - DCS autodin, 495
 - DCS autovon, 495
 - elements of, 493
- methods of communicating, 496-501
 - electrical, 496
 - pyrotechnics, 501
 - sound, 501
 - visual, 499-501
- shipboard communication organization, 501-503
 - communication spaces, 502
 - personnel, 501
- Naval terms and expressions, 84-94
 - anchor watch, 84
 - avast, 84
 - aye, aye, 84
 - bells, 84
 - bilge, 86
 - binnacle list, 86
 - bitter end, 86
 - bluejacket, 86
 - boatswain, 86
 - boatswain's pipe, 86
 - brig, 86
 - bumboat, 86
 - captain, 87
 - caulk, 87
 - chains, 87
 - Charlie Noble, 87
 - chit, 87
 - christening a ship, 87
 - commission pennant, 88
 - conn, 88
 - coxswain, 88
 - crossing the line, 88
 - cut of his jib, 88
 - dipping the ensign, 88
 - dog watch, 89
 - eyes of the ship, 89
 - flag at half-mast, 89
 - forecastle, 89
 - gangway, 89
 - grog, 89
 - gun salutes, 90
 - hawser, 91
 - head, 91
 - holystone, 91
 - Jacob's ladder, 92
 - keelhauling, 92
 - lashing broom to masthead, 92
 - lucky bag, 92
 - mast, 92
 - midshipmen, 92
 - piping the side, 92
 - quarterdeck, 93
 - scuttlebutt, 93
 - "show a leg," 93
 - sickbay, 93
 - skylark, 93
 - smoking lamp, 93
 - starboard and port, 94
 - sundowner, 94
 - tar, 94

Naval terms and expressions—Continued
 tattoo, 94
 wardroom, 94
 “working off a dead horse,” 94

Naval tradition, makers of, 18-45
 Civil War, 28-30
 Korean War, 43
 Navy enters the 20th century, 36
 Revolutionary War, 18-21
 Spanish-American War, 35
 tradition makers in peacetime, 31-35
 Vietnam, 44
 War of 1812, 25-28
 war with France, 21-24
 war with Tripoli, 24
 World War I, 38
 World War II, 39-43

Naval weapons systems, 396-418
 airborne weapons, 408-418
 development of airborne weapons, 400
 development of shipboard weapons,
 396-400
 weapons of the fleet, 400-408
 antiair warfare (AAW) missiles,
 402-405
 antiship warfare missiles (cruise),
 406-408
 antisubmarine warfare weapons, 405
 ASROC (RUR), 405
 guns, 400-402
 SUBROC (UUM), 405-406

Navy and seapower, 1-17
 current world situation, 11-17
 commerce and oceanography, 15-17
 Navy deployment, 13-15
 evolution of seapower, 9-11
 history of seapower, 2-5
 great White Fleet, 5
 national strategy, 17
 seapower in modern times, 5-9
 Cuban quarantine, 8
 seapower and naval blockade, 6-8

Navy Campus For Achievement (NCFA), 68-71
 Navy, components and supporting elements of,
 217-247

Navy, Department of, 203-216
 Navy Medical Department, 225-229
 Navy RDT&E program, 530-532
 Navy's ongoing research programs, 538-553
 NFOC Program, 54
 Nimitz, Chester William, 39

Nonjudicial Punishment (NJP), 143-146
 NROTC, 50, 53
 Nuclear weapons, 418
 Numeral pennants, 569

O

Oceanography, 541-552
 Oceanography and commerce, 15-17
 Officer assignments, 58-64
 Officer benefits, 73-80
 Officer Candidate School (OCS) Program, 53
 Officer education, 64-71
 Officer fitness reports, 559-563
 adverse reports, 562
 preparation of, 561
 submission of, 563
 Officer procurement, 47-54, 266-270
 Navy, 47-54
 Marine Corps, 266-270
 Officer promotions, 54-58
 Officers, classification and distribution of,
 564
 Officer service record, 557
 Officer training, 270
 Officer uniforms and insignia, 97-107
 Operating forces of the Navy, 212-213
 Ordnance equipment, 326-329

P

Parsons, Dr. Usher, 27
 Patrol craft, 366
 Pay and allowances, 71-73
 Peacetime organization, 247
 Perry, Oliver Hazard, 26
 Personnel records, 554-558
 Phases of an amphibious warfare, 464-472
 Phonetic alphabet and Morse code, 566
 Plating, 307
 Porter, David D., 29
 Post-Civil War period, 607-609
 Post-Korea developments, 383
 Pre-assault operations, 467
 Preble, Edward, 24
 Program for Afloat College Education
 (PACE), 70

Quarterdeck etiquette, 128

R

Reasoner, Frank S., 45
 Repair ships, 374
 Replenishment at sea, 369
 Research and development, 530-553
 early Navy research, 532-536
 Navy RDT&E Program, 530-532
 between world wars, 533-535
 World War I, 533
 World War II, 535-536
 Navy's ongoing research programs, 538-553
 Naval Research Laboratory, 538
 oceanography, 541-552
 other areas of naval research, 552-553
 Post-World War II research, 536-538
 Office of Naval Research, 537
 Reserve Officer Candidate (ROC) Program, 54
 Retirement, officer, 76-79
 Retirement Point Credit, 278
 Revolutionary War, 18-21
 Rotary-wing aircraft nomenclature, 385

S

Salutes, 117-122
 hand salutes on formal occasions, 120-122
 proper manner of saluting, 117
 when not to salute, 120
 when to salute, 118-120
 Seabees, 218-223
 team, 221
 SEAL teams, 474
 Seapower and the Navy, 1-17
 current world situation, 11-17
 evolution of, 9-11
 history of, 2-5
 in modern times, 5-9
 national strategy, 17
 Security, 504-520
 authority to classify, downgrade, and
 declassify, 509-510
 classification guides, 510
 derivative classification, 510

automatic downgrading and
 declassification, 511-512
 classification categories, 507-509
 Confidential, 508
 doctrinal material, 509
 For Official Use Only, 508
 Restricted Data, 508
 Secret, 508
 Top Secret, 508

classification markings, 510-511
 destruction, 517

disclosure of classified material,
 512-514
 disciplinary action for security
 violations, 513
 disclosure to the general public,
 513
 rules for disclosure, 512

enemy espionage, 505-507
 data desired by the enemy, 505
 proof of enemy success, 506-507

safekeeping and storage, 518-520
 container designations and
 combinations, 520
 numerical evaluation, 519
 storage, 519

security areas, 517-518
 controlled area, 518
 exclusion area, 517
 limited area, 518
 security control and responsibility, 507
 specific protective measures, 514-517
 cryptographic security, 516
 personal censorship, 514
 physical security, 515
 transmission security, 515-516

Semaphore alphabet, 567
 Semmes, Raphael, 30
 Service craft, 379
 Servicemen's Opportunity College (SOC), 69
 Seventh fleet logistics, 482
 Shields, Marvin G., 44
 Shipboard ASW organization, 460-461
 Shipboard communication organization, 501

Shipboard Organization, 283-305

- administrative organization, 283-300
 - commanding officer, 283
 - executive officer, 284-288
- division officers, 297-300
 - counseling, 299-300
 - training, 298-299
- functional organization, 300-305
 - battle organization manual, 301
 - living quarters and messes, 305
 - logs, 304-305
 - standard organization and regulations manual, 301
 - watches and watch officers, 301-304
 - watch, quarter, and station bill, 304

heads of department, 288-297

- aircraft intermediate officer, 295
- air wing commander, 295
- air officer, 295
- commanding officer Marine detachment, 293
- communications officer, 290
- dental officer, 297
- engineer officer, 293-295
- medical officer, 296
- navigator, 291
- operations officer, 288-290
- reactor officer, 295
- repair officer, 297
- supply officer, 296
- Weapons officer (or First Lieutenant), 292

Shipboard relations between officers and men, 131

Shipboard weapons, development of, 396-400

Ship construction, 306-324

- designing and planning stages, 307
 - conceptual design, 307
 - contract design, 307
 - inception, 307
 - working drawings, 307
- basic ship structure, 307-312
 - bents, 311
 - bulkheads, 310
 - decks, 311
 - framing, 309
 - inner bottom and torpedo protection, 310
 - keel, 308
 - plating, 307

Ship construction—Continued

- compartmentation, 312-316
 - compartment numbering in ships constructed before March 1949, 314
 - compartment numbering in ships constructed after March 1949, 315
 - watertight integrity, 313
- shipbuilding procedure, 316-324
 - commissioning, 323-324
 - erecting the ship, 317-319
 - fitting out, 323
 - launching, 319-323
 - subassembly bays, 316

Ships, external equipment of, 325-341

Shore activities, 213

Sims, William S., 36

Sound navigation and ranging, 460

Spanish-American War, 35

Staffs and stacks, 336

Striking force, 419-426

- carrier striking forces, 419-422
 - amphibious support, 422
 - development of the fast carrier task force, 420
 - logistic support, 421
 - task groups, 420
- present-day striking forces, 422-426
 - air strikes, 424
 - current capabilities, 426
 - fire support, 425
 - surface action, 425
 - surface striking forces, 424

Structure of naval logistics, 484-488

Submarine warfare, 433

- Submarine warfare during World War I, 434
 - developments since World War II, 440-446
 - training and duty, 446
 - warfare during World War II, 435-440

SUBROC, 405-406

torpedoes, 405-406

Supply Corps, 224

Supporting operations, 467

Surface programs, 280

Surface striking forces, 424

Surface units, 456

Survivor Benefits Plan (SBP), 79

T

Task groups, 420
Telecommunications, naval, 492-503
 elements of, 493
Tenders, 375
Torpedo tubes, 331
Towing salvage and rescue ships, 376
Truxton, Thomas, 22-24

U

UDT operations, 472-474
Undersea warfare, 433-453
 mine warfare, 446-453
 Explosive Ordnance Disposal (EOD),
 453
 Mine Countermeasures (MCMs),
 450-452
 operational mines of today, 449
 operations in the Vietnam conflict,
 449
 operations in World War I, 447
 operations in World War II, 448
 submarine warfare, 433
 submarine warfare during World War I,
 434-446
 developments since World War II,
 440-446
 during World War II, 435-440
 training and duty, 446
Underwater demolition teams and Navy
 SEAL teams, 472-474
Uniform Code of Military Justice and
 discipline, 133-193
Uniforms and insignia, 97-116
 enlisted personnel, 107-114
 uniforms, 108-114
 medals and other insignia, 114-116
 officer personnel, 97-107
 aiguillettes and mourning badges,
 103
 Coast Guard uniforms, 103
 Naval Academy midshipmen, 104-107
 uniforms and corps devices, 98-103
 women's uniforms, 103

Uniforms and tradition, 94-96

 enlisted uniforms, 95
 officers' uniforms, 95

Unit classifications, 279

United States Coast Guard, 235

United States Marine Corps, 248-271

 history of, 251-263

 between world wars, 257

 Korea, 260

 Korea to Vietnam, 261-263

 World War I, 256

 World War II, 257-260

 officer procurement, 266-270

 enlisted commissioning program, 268

 former regular officers, 268

 limited-duty officers, 268

 Naval Academy, 268

 NESEP, 269

 NROTC, 268

 platoon leaders, program, 268

 warrant officer, 268

 officer training, 270-271

 organization and equipment, 263-266

 equipment, 265

 fleet Marine force, 263

 reserve, 264

 women Marines, 265

 tradition, 251

 useful publications, 271

United States Merchant Marine, 245-246

U.S. Naval Academy, history of, 605-613

 from 1898 to World War I, 609-611

 Mexican and civil wars, 606

 Post-Civil War period, 607-609

 World Wars I and II, 611-613

V

Vessel types and characteristics, 342-379

 auxiliary ships, 369-379

 ammunition ships, 369-374

 repair ships, 374

 replenishment-at-sea ships, 369

 tenders, 375

 towing, salvage, and rescue ships,

 376-379

essel types and characteristics—Continued

combatant craft, 366-369
 landing craft, 367
 patrol craft, 366
 riverine warfare craft, 368
 combatant ships, 342-366
 aircraft carriers, 343-347
 amphibious assault ships, 361
 amphibious cargo ships, 359-361
 amphibious command ships, 365
 amphibious transport dock, 362-365
 amphibious warfare ships, 357
 battleships, 347
 cruisers, 348-350
 destroyers, 350-352
 frigates, 355-357
 mine warfare ships and helicopters,
 365
 patrol combatants, 357
 submarines, 352-355
 tank landing ships, 357-359
 service craft, 379
 Veterans Readjustment Assistance Act, 71
 Vietnam, 44
 Vietnam, logistics, 479

W

Wardroom etiquette, 128-130
 Warfare, amphibious, 462-474
 Warfare, antiair, 427-432
 Warfare, antisubmarine, 454-461
 Warfare, undersea, 433-453
 War of 1812, 25-28
 War with France, 21-24
 War with Tripoli, 24
 Watertight integrity, 313
 Watch, Quarter, and station bill, 304
 Watches and watch officer, 301-304
 Weapons of the fleet, 400-408
 Weapons systems, Naval, 396-418
 White Fleet, 5
 Williams, James E., 44
 Women in the Navy, 233
 Women Marines, 265-266
 Women's uniforms, 103
 World War I, 38
 World War I, Marine Corps, 256-257
 World War II, 39-43, 381-384
 World War II, Marine Corps, 257-260